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A TEMPORAL INVESTIGATION INTO THE DIMENSIONS OF COMPETITIVE ANXIETY: THEORY INTO PRACTICE

(Volume 1)

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ABSTRACT

This thesis provided a detailed examination of psychological preparation during the time leading up to competition. Competitive anxiety symptoms were investigated through a fine-grained measurement approach incorporating the dimensions of intensity (i.e., level), directional perceptions (i.e., facilitative/debilitative), and frequency (i.e., amount of time) using the modified Competitive State Anxiety Inventory-2 (Jones & Swain, 1992; Swain & Jones, 1993). Three different research methodologies were employed across the thesis. The first two studies adopted a quantitative design. Study three used a mixed method design utilising an idiographic labelling approach and qualitative interview techniques. The final study utilised a single-subject multiple baseline design. Study one investigated intensity, direction and frequency dimensions of competitive state anxiety throughout a one week preparation period as a function of skill level in a sample of National and Club performers. Results indicated no skill level differences in the intensity or frequency of symptoms, but the national level performers were more facilitative in their interpretation of cognitive and somatic anxiety. Additionally, change-over-time effects were only noted in the intensity and frequency of symptoms, with greater variation being observed in the frequency dimension. Study two examined preparation based temporal variations in anxiety symptoms (intensity, direction and frequency) as a function of symptom interpretation (facilitative/debilitative/mixed). Results indicated facilitators displayed higher intensities of self-confidence, a more positive interpretation of cognitive and somatic anxiety, lower frequencies of cognitive anxiety and higher frequencies of self-confidence than the debilitators during the week leading up to competition. Further, change-over-time effects were observed in the dimensions of intensity, direction and frequency, with greater variation being noted in the frequency dimension. These findings highlighted important practical implications regarding the preparation strategies facilitators and debilitators used during the time leading up to competition. Study three addressed how the two groups of performers psychologically prepared during the time leading up to competition using qualitative interviews. Causal questions, and probes underpinned by an Experience Sampling Method technique followed by causal network analysis and composite sequence analysis revealed that in comparison to the debilitators, the facilitators utilised a refined psychological preparation routine during the time leading up to competition. This routine relied on specific imagery, thought rationalisation, cognitive restructuring, goal setting and self-talk skills during certain phases of the preparation period. These findings generated important practical implications when attempting to restructure performer's negative symptom experiences during preparation time for competition. The final study examined the influence of a multi-modal preparation based intervention programme on performers debilitated by their pre-performance anxiety symptoms. Intervention effects were examined over competitive sporting performance and the symptoms experienced during the preparation time for competition throughout a ten match competitive cycle. The intervention programme successfully restructured cognitive and somatic anxiety symptoms, increased self-confidence intensity, decreased cognitive anxiety frequency and increased self-confidence frequency throughout the preparation time for competition. Further, these changes were associated with an approximate 10% improvement in sporting performance. These findings indicated preparation based interventions provide beneficial effects for the performance of athletes, and the pre-event symptoms they experience. In summary, this thesis suggests sport psychologists, both researchers and practitioners, should consider the reactions to competition as preparation based temporal processes incorporating the dimensions of intensity, direction and frequency and develop interventions that are shaped by the time leading up to competition.

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TABLE OF CONTENTS

APPENDICES (SEE VOLUME TWO)

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

1.1 COMPETITIVE STRESS AS A FACTOR IN SPORT

The advance of sport psychology as a discipline over the last 30 years has seen a systematic examination of the ability athlete's possess to deal with the pressure of competition (cf. Woodman & Hardy, 2001). As noted by Jones (1995), this pressure is most often associated with elevated levels of stress and anxiety with which the ability to cope forms an integral issue within elite participation. It is unsurprising therefore, that the research area of stress and anxiety in sport has enjoyed large prominence as sport psychology has evolved.

Several major developments have significantly aided the area of study including the evolution of a multidimensional explanation of anxiety and the distinction between cognitive and somatic components (Martens, Vealey, & Burton, 1990). This development, in line with the construction of the measurement instrument, the Competitive State Anxiety Inventory-2 (CSAI-2) has allowed for a greater understanding of the competitive state anxiety response and has underpinned a plethora of investigations assessing the intensity of performers' symptoms and their relationship with performance. Although this vein of research has contributed greatly to our understanding, additional dimensions of the anxiety response have been proposed such as directional perceptions of the experienced symptoms (Jones & Swain, 1992) and the frequency with which they occur as competition approaches (Swain & Jones, 1993)[1.1].

[1.1] A full review of these additional dimensions is provided in Section 2.6 of Chapter II.

The identification of these dimensions is encouraging, and over the last 10 years a growing body of empirical research has focused on the individual difference variables mediating an athlete's perception of their anxiety symptoms. However, limited attention has been accorded to examining the temporal (i.e., change-over-time) responses of an athlete's perception of their anxiety symptoms. Further, and as a direct consequence of an unwillingness to investigate within a temporal paradigm, scant research material has examined symptom frequency changes during the preparation time for competition. This lack of consideration to the temporal nature of an athlete's stress response is somewhat surprising considering the process-orientated view of stress espoused in general psychology. Specifically, as noted by Lazarus (1999) stress and the reactions to it encompass a process that shifts through time. In the sporting domain, this indicates that an athlete's emotional response to the stressor of competition is likely to be characterised by reactions that change over time. Therefore, in order to learn how athletes cope, and deal with the ever fluctuating environment that the athlete faces as they prepare for competition, there is a demand for researchers to examine competitive anxiety responses during the time leading up to competition.

At the applied level, understanding when, how, and why athlete's pre-competitive symptoms change becomes a vital issue for assisting preparation during the time leading up to competition (Hanton, Mellalieu & Young, 2002; Mellalieu, 2003). Specifically, when designing psychological interventions, the practitioner needs to consider reactions to competition in order to identify appropriate prescriptive points for intervention as competition approaches (Mellalieu, 2003). Indeed, if one considers the importance placed upon appropriate preparation during the time leading up to competition it is surprising that limited research material has examined psychological skills interventions through temporal based designs.

1.2 PREPARATION AS A FACTOR IN COMPETITIVE SPORT

The importance elite athletes place on preparation for performance can be derived from many anecdotal reports. In simple terms, George Allen (1994), an American sports writer suggested "Winning can be defined as the science of being totally prepared". In comparison, the following passage of text from former England and British Lion rugby union player Rob Andrew (1995) highlights a player's perspective on the issue:

> "Going to Cardiff two days before the match, rather than on the Saturday morning as had been our custom, was part of Cooke's psychological build up for the opening Championship game against Wales. Our preparations had begun on the Wednesday evening at Kingsholm in Gloucester where the manager had organised a special St. David's day welcome for us. As we ran onto the field the tannoy crackled into life with a scratchy rendition of the Welsh national anthem. As we crossed the Seven Bridge the following day, the anthem was played again on the team bus, and for the next forty-eight hours we were immersed in all things Welsh. By the time we walked though the packed lobby of our hotel an hour and a half before kick-off and began our solemn march to the ground through thousands of milling supporters, we were totally immune to the Welsh and Wales" (p. 166).

The perspective outlined by Rob Andrew begins to highlight the importance of considering psychological preparation for performance as a temporal event that unfolds during the time leading up to competition. Former world number one batsmen Michael Atherton (2002) also emphasises this perspective when summarising how he used to prepare during the days leading up to a Test match. Specifically, Atherton emphasised that both physical and psychological practice formed the key elements of preparation as competition neared. The following passage of text from Atherton's autobiography illustrates how he integrated psychological skills into practice environments in the final days leading up to a Test.

> "The preparation for my innings, as always, had started to take place in the two days practice before the match..... I always tried to net with a purpose, and here I wanted to replicate my first ten minutes in the match. As I walked into the net, therefore, I transplanted myself into a match situation, imagined I was about to face the first ball of the game and I went through my ritual: I scraped the crease to make sure I had a good footing; stretched and visualised the umbrella field that was likely to be awaiting Allan Donald's first ball..... After practice, in the changing room, I went through South Africa's bowlers in my mind. (a) Allan Donald: wide of the crease; generally moves the ball in; length usually short or full; first spell quick; lots of bouncers; can go flat if you get on top of him; attack off back foot and defend off the front. (b) Shaun Pollock: Close to the stumps; bounce and away movement; bouncer difficult to take on; stay still and avoid going across the crease; first spell quick not so after that. (c) Meyrick Pringle: medium pace; genuine swing; usually away swing with an obvious change of action for the inner; wait and play late; bit of a joker – avoid getting into a chat. (d) Brian McMillan: straight, no swing; bouncer quicker; sledger – don't get involved!" (pp. 160-161).

These personal reflections on performance preparation illustrate that performers do utilise psychological skills during the time leading up to competition. However, these extracts remain anecdotal reports; and although informative, one could question an applied sport psychologist constructing interventions based on anecdotal reports. This perspective has recently been highlighted by Shambrook and Bull (2001). These authors noted that most applied research studies in sport psychology (e.g., Hanton & Jones, 1999b; Maynard, Hemmings, & Warwick-Evans, 1995a; Maynard, Smith, & Warwick-Evans,1995b; Maynard, Hemmings, Greenlees, Warwick-Evans, & Stanton, 1998) have focused on constructing psychological skills intervention programmes from data drawn almost solely from times immediately before competition. This situation that has resulted in a lack of theoretical grounding on which practitioners can prescribe temporal based psychological skills interventions. This position led Shambrook and Bull (2001) to state that many leading sport psychologists adopt a "fire fighting" approach when

intervening with athletes, focusing interventions at time close to competition to the detriment of fully preparing the athlete as the stressor of competition moves closer. This lack of structured empirical research examining the psychological preparation routines of competing athletes is somewhat surprising given the perspectives previously outlined in this chapter.

In summary, researchers and practitioners have focused on the athlete's ability to deal with the stressors and pressures associated with elite competition. Integral to this approach remains the perspective that if stress and the responses to it change as a process over time, sport psychologists should assess these changes in order to identify appropriate prescriptive points for intervention as competition approaches. In line with the emphasis elite performers place on preparation for competition, temporal research designs should allow practitioners to develop psychological skills routines that avoid the "fire fighting" approach outlined by Shambrook and Bull (2001).

1.3 PURPOSE OF THE THESIS

The purpose of this thesis was to provide an in-depth examination of temporal stress responses and pre-performance preparation routines of performers during the time leading up to competition. The thesis utilised the multidimensional perspective of competitive anxiety to theoretically underpin its structure. The research also integrated recent conceptualisations regarding directional perceptions and frequency dimensions of athlete's symptom responses. It was the goal of this thesis to make the transition from theory into practice and provide a psychological skills intervention programme that practitioners could utilise during the preparatory phases of competition. Therefore, this thesis specifically examines: 1) temporal changes in the intensity, direction and frequency dimensions of competitive anxiety symptoms with respect to skill level: 2) temporal changes in the intensity, direction and frequency dimensions of competitive

anxiety symptoms with respect to perception of anxiety symptoms (facilitative vs. debilitative): 3) the psychological routines and skills athletes with facilitative and debilitative symptom interpretations utilise during the preparation time for competition: and, 4) the effects of a temporal multimodal intervention strategy which attempts to alter performers pre-competitive symptoms during the week leading up to performance, and examines the effects of the intervention programme on competitive performance.

1.4 STRUCTURE OF THE THESIS

The thesis comprises six further chapters within which the four central research questions are addressed. The chapter associated with each of these studies provides a separate literature review which supplements the main review of literature. The specific structure of the thesis is as follows:

Chapter 2 provides a critical overview of the development of anxiety research and focuses on the temporal research within the domain.

Chapter 3 (Study 1) examines the intensity, direction and frequency of anxiety symptoms during a one week temporal preparation phase in a sample of high an low skilled athletes. The purpose of the study was to investigate if temporal changes in anxiety symptoms are mediated by skill level.

Chapter 4 (Study 2) examines the intensity, direction and frequency of anxiety symptoms during a one week temporal preparation phase in a sample of athletes with differing directional perceptions of their anxiety symptoms. The purpose of the study was to investigate if temporal changes in anxiety symptoms are mediated by facilitative or debilitative perceptions.

Chapter 5 (Study 3) reports an investigation into the psychological skills and routines of athletes with differing perceptions of their anxiety symptoms. The purpose of the study was to provide information to develop a psychological skill intervention programme that athletes could utilise in the preparation time for competition.

Chapter 6 (Study 4) examines the effects of a multimodal temporal psychological skill intervention with performers debilitated by their pre-competitive anxiety symptoms. The purpose, therefore, was to attempt to control the anxiety symptoms the debilitators experienced during the preparation time for competition, and assess whether the intervention programme had any effect on competitive sporting performance.

Chapter 7 summarises the overall findings of the research programme and discusses their theoretical implications derived from the thesis. The chapter also provides an outline to the practical implications emanating from the findings, outlines the strengths and limitations in the research programme and highlights areas for future research.

CHAPTER II

REVIEW OF LITERATURE

2.1 INTRODUCTION

The review of literature begins with a section clarifying issues surrounding the use of terminology and concepts associated with arousal, activation, stress, and competitive anxiety in sport. This is followed by an overview and critique of both unidimensional and multidimensional conceptualisations of arousal and competitive anxiety and the theories associated with the performance relationship. The main focus of the review forms a synopsis of the temporal characteristics of unidimensional and multidimensional competitive anxiety. Incorporated into this section is a review of the moderator variables that are known to influence competitive anxiety throughout the time leading up to competition. The review concludes by identifying areas of future study within the domain of competitive anxiety thus providing the rationale for the programme of research undertaken within this thesis.

2.2 CLARIFICATION OF TERMS

Research and consultancy within sport psychology has often centred on the anxiety-performance relationship. Indeed, researchers suggest this to be unsurprising considering the demands placed upon modern day athletes to produce optimal performances in high pressure situations (Jones, 1995). This pressure often elicits elevated levels of stress and anxiety and it is the ability to cope with these problems that often forms an integral part of high-level sport. Hardy, Jones and Gould (1996) and Woodman and Hardy (2001) identified that a major misgiving within competitive anxiety research is the lack of distinction between the terms arousal, activation, stress

and anxiety. Therefore, definition of these concepts forms an important starting point in the context of this thesis.

2.21 AROUSAL AND ACTIVATION

Early definitions indicated that arousal was characterised as a unitary construct. Duffey (1962) suggested it equalled "...the extent of release of potential energy, stored in the tissue of the organism, as this is shown in activity or response" (p.179). Arousal was hypothesised to display an inverted-U type relationship with performance with moderate levels being linked to optimal performance accomplishments (Broadhurst, 1957; Hebb, 1955).[2.1]

Researchers have however, questioned this relatively simplistic unitary conceptualisation of arousal (e.g., Hockey & Hamilton, 1983; Hardy et al., 1996; Lacey, 1967; Neiss, 1988; Pribram & McGuinness, 1975). Indeed, Lacey (1967) provided evidence that indicated arousal comprised of three separate components; namely cognitive (electrocortical activity through EEG measurement), physiological (activity measured through skin conductance and heart rate), and behavioural (overt activity) elements. Further, Hardy et al. (1996) and Pribram and McGuinness (1975) extended this argument by encouraging researchers to make a clear distinction between arousal and activation. Specifically, activation refers to the cognitive and physiological resources that are initiated when preparing a planned response to an anticipated input into the system. In comparison, arousal encompasses the cognitive and physiological resources that are initiated when a new or unexpected stimulus enters the system (cf. Hardy et al., 1996; Pribram & McGuinness, 1975).

[2.1] An in-depth review of the inverted-U arousal performance relationship is given in Section 2.31.

2.22 STRESS AND ANXIETY

General psychology has observed that stress should be characterised as a process (Lazarus, 1966, 1982; 2000; Lazarus & Folkman, 1984). Stress has been defined as "...a relationship between the person and the environment that is appraised by the person as relevant to his or her well-being and in which the person's resources are taxed or exceeded" (Folkman & Lazarus, 1985, p.152). In the sporting context, researchers have acknowledged the main tenets of Lazarus and co-worker's definition (e.g., Hardy et al., 1996; Jones, 1990; Woodman & Hardy, 2001). For example, Jones (1990) regarded stress in sport as a state in which some demand is placed on the individual, who is then required to react in some way in order to overcome the situation. Therefore, it has been suggested that stress may or may not place strain on the individual, it is one's appraisal or perceived ability to cope with the situation (i.e., the stressor) that is central to the process. If the athlete doubts their ability to cope with the demand, feelings of anxiety are likely to be experienced (Jones, 1990).

Anxiety has become generally recognised as a negative emotional response that can be experienced as cognitive reactions, such as worry and distraction or as bodily arousal (cf. Raffety, Smith, & Ptacek, 1997). Lazarus (1999) indicated anxiety is a basic or fundamental emotion that can be elicited when a person faces uncertainty or existential threat. These definitions of anxiety rely heavily on developments away from the sporting domain, and centre themselves in the emotionality literature of general psychology. In order to fully understand this standpoint, a brief insight into the mechanisms through which emotional responses can be elicited is required. Two divergent opinions exist regarding the role of cognitive function when emotional responses are manifested. One school of thought provides evidence that emotions and affective responses occur without cognitive processing, with the other claiming cognitive processes underpin an individuals emotional and affective response to stimuli.

Zajonc (1980, 1984) and more recently LeDoux (1994) argued that cognitive processes are not necessarily required to form affective emotional responses. They point to evidence surrounding physiological responses to emotional stimuli that can occur without direct neural pathways to the cortex (i.e., affective responses occurring with no or little cognitive activity; cf. LeDoux, 1994). However, researchers such as Eysenck (1992) and Lazarus (1982; 2000) argued that appraisal plays a pivotal role in emotional experiences and that for any affective response to occur cognitive processing must take place. Perhaps the contention in the two approaches rests with methodological or situational variables within the research programmes. It is worth noting that Lazarus and co-workers utilised meaningful emotional provoking stimuli in their work whereas Zajonc (1980; 1984) and LeDoux (1994) used relatively subliminal meaningless signals. A point emphasised through Lazarus' (1982) conclusions when suggesting "Cognitive appraisal (of meaning or significance) underlies, and is an integral feature of all emotional states" (p. 1021); or "The emotions we experience in an adaptational encounter depend on an appraisal of the significance of what is happening for a person's well-being" (Lazarus, 2000; p.233). Sport psychologists have tended to concur with Lazarus' (1982, 2000) approach with anxiety being viewed as a negative emotion with which cognitive processing or appraisal of stimuli forms an integral part (Woodman & Hardy, 2001).

The stimuli to which competitive athletes react to are meaningful and significant (e.g., the importance of competition), with the author subscribing to the view that emotional responses produced by athletes derive from the cognitive appraisal of such stimuli. This concurs with Lazarus' (1982, 2000) beliefs from general psychology and with Jones' (1990) standpoint in the sport domain. This point remains a critical issue to this thesis; in short, if researchers support the opinion that cognitive processing precedes

emotional responses, the study of cognitive processes becomes vital to understanding the mechanisms underpinning the role of anxiety, stress and performance in sport.

In summary, the lack of clarity between the above terms has limited consistency within stress and anxiety based research (cf. Hardy et al., 1996; Woodman & Hardy, 2001). However, although related, the distinction remains important for understanding. For the purpose of this thesis arousal should be viewed as a multidimensional response to a new or unexpected stimuli, where as activation relates to a planned response to an anticipated stimuli (Hardy et al., 1996; Pribram & McGuinness, 1975). Further, stress should be viewed as a changeable process where demands are placed on an athlete with which the ability to cope, are integral. Central to this process is the role of cognitive appraisal, if the athlete appraises the situation as a non-coping response, feelings of anxiety are likely to ensue.

2.3 UNIDIMENSIONSAL AROUSAL APPROACHES

Until recently, research attempted to resolve the anxiety-performance relationship through arousal based explanations. The following section provides a brief insight into these explanations providing critique of the dated inverted-U theory before outlining reversal theory, a more recent approach to the study of the arousal performance relationship.

2.31 THE INVERTED-U HYPOTHESIS

Early proposals suggested the association between the two variables would be best described through an inverted-U relationship (Broadhurst, 1957; Hebb, 1955; Yerkes & Dodson, 1908). This was furthered by the observation that optimal arousal states would elicit superior performance levels. The hypothesis suggested that increases in arousal up to a certain 'optimal' level would result in performance gains. In

comparison, it was proposed that increases in arousal over and above the optimal point would result in performance decrements (Figure 2.1). Further, arousal theorists believed that different types of behaviour required different levels of optimal arousal, a relationship that directly related to task complexity. The more complex the task, the lower the level of optimal arousal (cf. Jones, 1995). The utilisation of inverted-U to characterise sports performance has seen the hypothesis being adopted by several researchers, primarily due to the intuitive appeal of the proposal (e.g., Anshel, 1990; Landers, 1994; Landers & Boutcher, 1986). However, the application of inverted-U as a viable explanation of the relationship has received criticism from a number of perspectives (e.g., Hardy 1990; Krane, 1992; Neiss 1988). One issue related to the definition of arousal and the dissatisfaction that inverted-U classifies arousal as a simplistic unitary concept (Hardy 1990; Lacey, 1967; Neiss, 1988). Indeed, Lacey (1967) provided evidence to suggest that arousal comprised cognitive (electrocortical activity through EEG measurement), physiological (activity measured through skin conductance and heart rate,) and behavioural (overt activity) components. Additional criticisms related to the hypothesis providing no actual explanation of how arousal effects performance, or why performance is impaired when levels are lower or higher than optimal (Eysenck, 1985). Hence, the inverted-U approach essentially outlines a model that describes, rather than a theory that forwards an explanation to account for the performance relationship. Finally, the inverted-U approach does not accommodate a cognitive appraisal processes (Gill, 1994); and related to Catastrophe Models[2.2], a slight reduction in arousal alone is not likely to reproduce optimal levels of performance (Hardy, 1990).

[2.2] View Section 2.53 for a full review of Catastrophe Model.

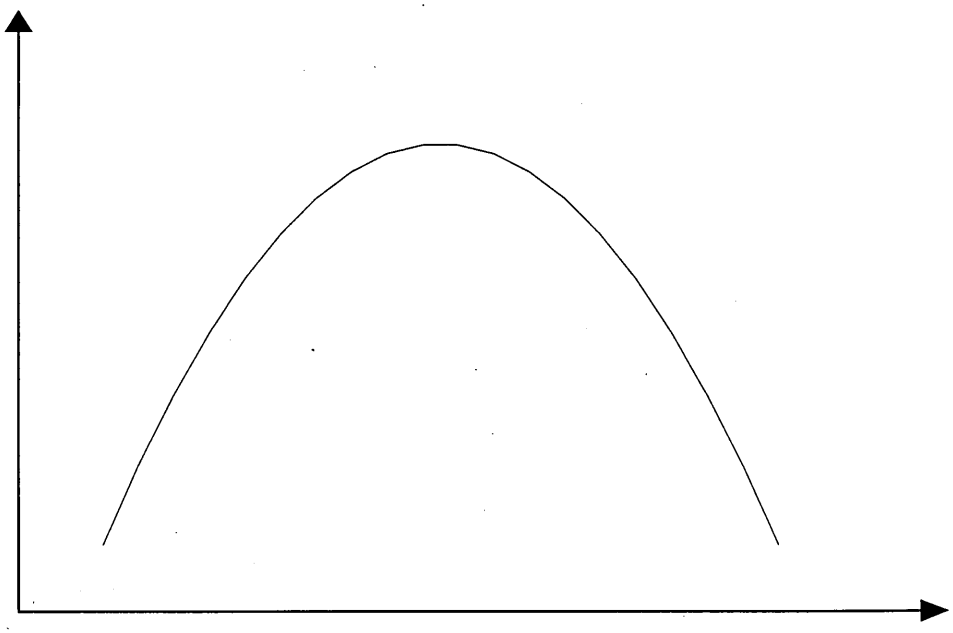

Figure 2.1: The Inverted-U Hypothesis (Yerkes & Dodson, 1908)

2.32 REVERSAL THEORY

A further unidimensional arousal based approach proposed to account for performance is reversal theory (Apter, 1982; Kerr, 1990). The theory postulated that 'metamotivational states' exist as pairs, with a metamotivational state being likened to a "...phenomenological state which is characterised by a certain way of interpreting one's own motivation." (Kerr, 1990; p. 129). The primary metamotivational dimension subjected to research in sports psychology is the telic-paratelic dimension. The telic dimension is characterised by seriousness, where individuals are goal-orientated and prefer low arousal levels; where as the paratelic dimension is denoted by spontaneity or playfulness, where individuals are activity orientated and prefer higher levels of arousal (cf. Jones, 1995; Woodman & Hardy 2001). Reversal theory suggested that when in the telic dimension athletes will interpret high arousal as anxiety and low arousal as relaxation. Where as, if athletes are in the paratelic dimension high arousal will be interpreted as excitement and low arousal as boredom (Kerr, 1990).

The theory proposed that athletes can often flip between metamotivational dimensions or 'reverse' between a pair to be in a dimension characterised as pleasant or unpleasant. For example, an athlete in the telic dimension who perceives a high level of arousal as unpleasant (i.e., anxiety) can 'reverse' and experience this high level of arousal as pleasant (i.e., excitement) with pleasant or unpleasant experiences labelled 'hedonic tones' (Kerr, 1990). Although an interesting proposal, the use of reversal theory in sports settings has been limited by a lack of consideration for performance. Although recent research has attempted to address this concern (e.g., Kerr, Yosida, Hirata, Takia, & Yamakazaki, 1997) by examining the effect of different hedonic tones on archery performance, researchers could still question the suggestion that pleasant feelings about levels of arousal should lead to better performance (cf. Woodman & Hardy, 2001). Further, it should be remembered that reversal theory was based on a unidimensional

conceptualisation of arousal, which as previously suggested, forms a limited view of a multi-component construct (Lacey, 1967).

2.4 UNIDIMENSIONSAL ANXIETY APPROACHES

Due to the limitations outlined in the previous sections, research progressed from explanations orientated around arousal-based approaches to attempting to account for the performance relationship via anxiety approaches. The following section outlines the major developments within the unidimensional study of anxiety detailing the distinction between general and specific anxiety and, state and trait anxiety. Finally, Individual Zones of Optimal Functioning (IZOF's) are presented as an approach that has attempted to describe the anxiety-performance relationship through a unidimensional conceptualisation.

2.41 GENERAL VERSUS SPECIFIC ANXIETY

Conceptual developments within anxiety research were hindered until the 1950's by a lack of distinction between general and situation-specific anxiety. Mandler and Sarason (1952) pioneered the notion that anxiety is not a general phenomenon. Specifically, they argued that anxiety was a learned response to situations and was therefore situation specific. For example, an individual may become increasingly anxious when faced with an academic exam, however, they may not elicit such symptoms prior to a concert performance. In short, these researchers observed that anxiety responses were situation specific rather than a generalised response across all stressful situations.

2.42 THE STATE TRAIT DISTINCTION

Spielberger (1966) has been credited with the separation of anxiety into two separate components of and trait anxiety. Spielberger (1966) defined state anxiety as "Subjective, consciously perceived feelings of tension and apprehension, associated with ... arousal of the autonomic nervous system" (p. 17). This state was suggested to be relatively transitory and relate to a specific event or threatening situation. Where as, trait anxiety was noted as a general disposition to respond to a range of situations (threatening or unthreatening) with elevated levels of state anxiety.

2.43 INDIVIDUAL ZONES OF OPTIMAL FUNCTIONING

Individual Zones of Optimal Functioning (IZOFs) were proposed by Hanin (1980, 1986) as a unidimensional anxiety based approach to optimal performance at an intraindividual idiographic level. Initially developed as a practical applied tool, the approach suggested every athlete possesses an optimal pre-performance anxiety zone within which performance levels would be greatest. Further, if an athletes level of anxiety were above or below this zone, performance was likely to be impaired. Therefore, a central issue within the hypothesis was that it is not levels (high, moderate or low) of anxiety *per se* that are important for performance, but whether the athlete is close to, or within their preferred anxiety zone (cf. Hanin & Syrjä, 1995).

Research has supported the notion that higher levels of performance can be achieved when athletes' anxiety levels are within their preferred zones (e.g., Gould, Tuffrey, Hardy & Lochbaum, 1993; Krane, 1993; Turner & Raglin, 1991; Woodman, Albinson & Hardy, 1997). For example, Turner and Raglin (1991) showed that athletes' track and field performance was significantly better when their anxiety levels were within their estimated IZOF in comparison to athletes whose levels were outside. However, investigations have indicated equivocal findings in the application of the

IZOF hypothesis (e.g., Randle & Weinberg, 1997; Thelwell & Maynard, 1998). Several methodological limitations are proposed to account for such findings, with researchers questioning the methods through which IZOF's are calculated (Randle & Weinberg, 1997). Specifically, these authors criticised the retrospective recall method through which IZOF's have previously been elicited. Further, they noted statistical limitations in the way group means have tended to be used to derive IZOF's when Hanin (1980, 1986) proposed the hypothesis as an intraindividual idiographic approach.

At a more theoretical level, authors have noted that IZOF's may be open to criticism for two main reasons (e.g., Gould & Tuffrey, 1996; Hardy et al., 1996). First, Hanin's (1980) original proposals were based on a unitary conceptualisation of anxiety[2.3]; although, this weakness has recently been overcome by research investigating IZOF's within a multidimensional framework (e.g., Thelwell & Maynard, 1998; Woodman et al., 1997). Secondly, and perhaps more crucially, IZOF essentially comprises an individual difference theory without any individual difference variables (Gould & Tuffrey, 1996; Hardy et al., 1996; Woodman & Hardy, 2001). Therefore, although intuitively appealing, IZOF's remain a practical applied tool with limited uses due to the lack of theoretical underpinnings associated with the hypothesis (cf. Woodman & Hardy, 2001).

2.5 MULTIDIMENSIONAL ANXIETY APPROACHES

2.51 THE SHIFT FROM UNIDIMENSIONAL TO MULTIDIMENSIONAL ANXIETY

As noted in Section 2.4, early research within sport psychology recognised the importance of distinguishing between trait and state anxiety but viewed the constructs as unidimensional. Much of this early research used either the state version of the State-

[2.3] Section 2.51 outlines the criticisms associated with a unidimensional conceptualisation of anxiety.

Trait Anxiety Inventory (STAI; Speilberger, Gorsuch & Luschane, 1970) or the Competitive State Anxiety Inventory (CSAI; Martens, Burton, Rivkin & Simon, 1980) to calculate competitive anxiety intensity. It is worth noting, that the STAI was developed as a non-sport specific measure of anxiety and was criticised because of the need for instruments to be situation specific, and sensitive to the characteristics of the measurement environment (e.g., Mandler & Sarason, 1952; see Section 2.41). In response, Martens et al., (1980) developed the sport specific CSAI, suggested to be a more sensitive scale for use within sporting environments.

Although the developments outlined above aided understanding, the conceptualisation of anxiety was somewhat limited in comparison to the views adopted in general psychology. The parent discipline had begun to recognise anxiety as a multidimensional response including both a cognitive and somatic component (Davidson & Schwartz, 1976; Leibert & Morris, 1967). When defining the components, cognitive anxiety was suggested to reflect "...the cognitive elements of anxiety, such as negative expectations and cognitive concerns about oneself, the situation at hand, and potential consequences." (Morris, Davis & Hutchings, 1981; p. 541). Where as somatic anxiety was defined as "...ones perception of the physiological-affective elements of the anxiety experience, that is, indications of autonomic arousal and unpleasant feelings states such as nervousness and tension." (Morris et al., 1981; p.541). Subsequent research (e.g., Borkovec, 1976; Davidson & Schwartz, 1976; Morris, et al., 1981) supported this two component structure and led to the development of multidimensional state measures such as the Worry-Emotionality Inventory (WEI; Morris et al., 1981), and trait measures such as the Test Anxiety Inventory (TAI; Speilberger, Gonzalez, Taylor, Algadze & Anton, 1978).

The stimulus for the use of multidimensional anxiety in sport psychology was initiated through the development of the Competitive State Anxiety Inventory-2 (CSAI-

2; Martens, Burton, Vealey, Bump & Smith, 1990) as a development of Martens et al.'s. (1980) original (unidimensional) CSAI scale. Martens et al. (1990) integrated the definitions of Morris et al. (1981) with state cognitive anxiety suggested to be "...most commonly manifested in negative expectations about performance and thus negative self-evaluation, both of which precipitate worry, disturbing visual images or both." (p. 120). In comparison, state somatic anxiety was referred to as "...the physiological and affective elements of the anxiety experience that develop directly from autonomic arousal. Somatic A-state is reflected in such responses as rapid heart rate, shortness of breath, clammy hands, butterflies in the stomach, and tense muscles." (p.121)[2.4].

2.52 MULTIDIMENSIONAL ANXIETY THEORY

Following the multidimensional conceptualisation of competitive anxiety and Martens et al.'s (1990) development of the CSAI-2, Multidimensional Anxiety Theory (MAT) was introduced. The theory proposed that cognitive anxiety and somatic anxiety were triggered by opposing antecedents, influenced performance differentially, would respond to different interventions and would have different temporal patterns during preparation time leading up to competitive events. Specifically, cognitive anxiety was suggested to exhibit a negative linear relationship with performance where as somatic anxiety was hypothesised to display a quadratic, or inverted-U relationship. In the case of cognitive anxiety, the proposed performance relationship was based on Wine's (1971) theory of attentional disruption where athletes described to be worrying were suggested to become preoccupied with their own self-evaluation rather than direct attention to the task in hand (i.e., performance; Martens et al., 1990). The rationale for the hypothesised relationship between somatic anxiety and performance is less clear, although it appears

[2.4] It should be noted that during the development of the CSAI-2, self-confidence also emerged as a construct within multidimensional competitive anxiety. However, an explanation of how the construct became part of multidimensional anxiety theory is outlined in Section 2.52 of the review.

to be an extension of the proposed inverted-U relationship between arousal and performance (cf. Woodman & Hardy, 2001). Additionally, Martens et al. (1990) cited Weinberg's (1978) research surrounding the effects of increased muscular tension on performance deterioration as a possible mechanism accounting for the relationship.

Research assessing the relationship between the components of anxiety and performance has tended to produce equivocal findings. A recent review by Burton, (1998) indicated that of sixteen studies reviewed, two (Burton, 1988; Taylor, 1987) displayed strong support for the proposed performance relationship; six provided moderate support (Barnes, Sime, Dienstbeir & Plake, 1986; Gould, Petlichkoff, Simons & Vevera, 1987; Jones & Cale, 1989a; Krane, Williams & Feltz, 1992; Maynard & Cotton, 1993; Williams & Krane, 1993) and eight provided weak support (Caruso, Gill, Dzewaltowski & McElroy, 1990; Gould, Petlichkoff & Weinberg, 1984; Hammermeister & Burton, 1995; Karteroliotos & Gill, 1987; Martin & Gill, 1991; Maynard & Howe, 1987; Maynard et al. 1995b; McAuley, 1985). Burton (1998) classified strong support as confirming the predicted anxiety (cognitive and somatic) performance relationship, moderate support as partially confirming the relationship, and weak support as unable to demonstrate any anxiety performance relationship.

As noted in Section 2.51, self-confidence also emerged as a separate construct of competitive anxiety during Martens et al.'s. (1990) original validation of the CSAI-2. At this point it is worth alluding to the mechanism by which self-confidence became a part of MAT. Specifically, during the exploratory factor analysis procedures adopted by Martens and colleagues' cognitive anxiety effectively split into two factors; a positively labelled set subsequently termed self-confidence, and a negatively worded set described by the term cognitive anxiety. Martens et al. (1990) suggested that the two constructs represented opposite ends of a continuum, with state self-confidence indicative of an absence of cognitive anxiety, and conversely state cognitive anxiety representing a lack

of state self-confidence. A conclusion that has been questioned due to the fact that cognitive anxiety and self-confidence emerged as orthogonal (i.e., independent) factors during the initial analysis procedure (cf. Hardy et al., 1996; Woodman & Hardy, 2001). Associated research (e.g., Gould et al., 1984; Hardy, 1996; Jones & Cale, 1989a) has also failed to support this conclusion with the two factors generally showing less then 40 per cent common variance demonstrating their relative independence.

According to MAT self-confidence should display a positive linear relationship with performance essentially due to the fact that Martens et al. (1990) concluded that it, and therefore its relationship with performance was opposite to that of cognitive anxiety (cf. Hardy et al., 1996). Although this view has been questioned the proposed relationship has received support within the literature related to performance in swimming (Burton, 1988). However, equivocal results are also evident with Gould et al. (1987) indicating that pistol shooting performance was negatively related to self-confidence levels. A further interesting point emerging from research surrounding the performance relationship includes the finding that self-confidence has been shown to predict greater amounts of performance variance than cognitive anxiety (e.g., Hardy, 1996; Parfitt & Pates, 1999).

A number of limitations have been cited accounting for these equivocal findings for the anxiety-performance relationship as hypothesised by MAT. These include, the use of global performance measures, lack of consideration to individual difference variables, between-subject cross-sectional designs as opposed to within-subject longitudinal designs and the sensitivity of the measurement device of anxiety, namely the CSAI-2 (Jones, 1995). This final point becomes particularly relevant to the current research programme with the use of a fine-grained measurement approach being one of the key issues.

2.53 CATASTROPHE MODEL OF ANXIETY AND PERFORMANCE

At this point in the review, it is important to note that MAT is not the only anxiety approach that attempts to describe the relationship between multidimensional anxiety and performance. In an associated line of research to developments ongoing in MAT, Hardy and colleagues proposed a catastrophe model of anxiety and performance (Fazey & Hardy, 1988; Hardy, 1990; Hardy & Parfitt, 1991). Specifically, these authors argued that MAT essentially attempted to describe a complex four-dimensional relationship (cognitive anxiety, somatic anxiety, self-confidence and performance) via a series of independent two dimensional relationships (Hardy, 1990; Woodman & Hardy 2001). In comparison, Hardy and colleagues proposed the relationship should be viewed via interactions between the anxiety components and performance through a catastrophe model (view Figure 2.2).

An important distinction within the model was the use of physiological arousal rather than somatic anxiety as preferred in MAT. This decision was based on the differential effects regarding the ways physiological arousal and somatic anxiety might influence performance (Hardy, 1990; Hardy, 1996). Specifically, Hardy and associates indicated physiological arousal could influence performance via direct and indirect effects. Direct effects were suggested to alter performers activation states through mediating the available cognitive and physiological resources available to the performer (Hardy, 1996; Hardy, Parfitt & Pates, 1994; Parfitt, Hardy & Pates, 1995). Where as, indirect effects were proposed to influence performance through the athletes' interpretation (or perception) of (positive or negative) their physiological arousal (Bandura, 1977; Hardy, 1996). This compared to MAT which through the utilisation of somatic anxiety only allowed performance to be indirectly effected by physiological arousal (i.e., through perception's of their physical symptoms; Hardy, 1996).

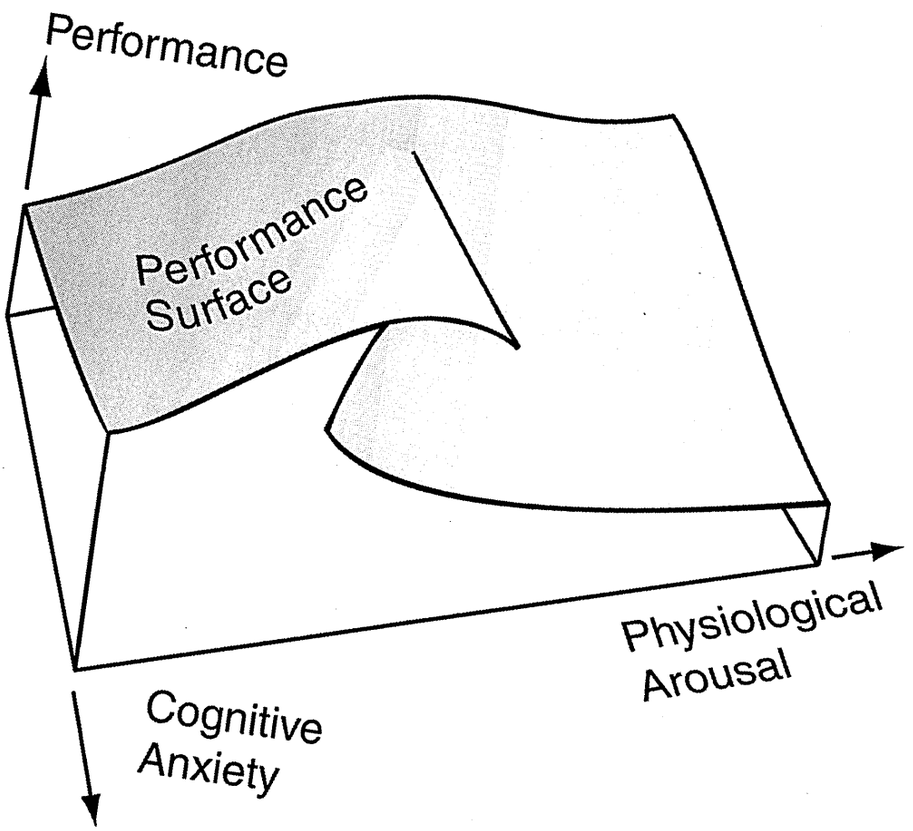

Figure 2.2: Catastrophe Model of Anxiety, Physiological Arousal and Performance (Hardy, 1990).

Catastrophe model predicted several reactions to describe the interactive effects of cognitive anxiety and physiological arousal on performance (cf. Hardy, 1990; Hardy, 1996; Hardy et al., 1996; Woodman & Hardy, 2001). The model proposed that elevations in cognitive anxiety would have positive performance consequences under conditions of low physiological arousal (the left edge of Figure 2.2), but would have negative consequences when physiological arousal was high (the right edge of Figure 2.2). Further, when cognitive anxiety levels were low, variations in physiological arousal would invoke relatively small performance effects characterised by a mild inverted-U type reaction (the rear face of Figure 2.2). However, under conditions of high cognitive anxiety, physiological arousal could affect performance positively or negatively; the central issue related to the level of physiological arousal the athlete experienced (the front face of Figure 2.2). Under conditions of high cognitive anxiety continued increases in physiological arousal were proposed to result in dramatic performance decrements characterised by a 'catastrophic' drop in levels. Once such a catastrophe had occurred, it was proposed athletes' must considerably reduce physiological arousal to levels below the point at which the catastrophe occurred before optimal performance levels were re-achieved (i.e., the upper performance surface); a response Hardy (1990; 1996) labelled the 'hysterisis effect'.

Although empirical research on the catastrophe model remains limited, equivocal support exists for some of Hardy's predictions (e.g., Edwards & Hardy, 1996; Hardy, 1996; Hardy & Parfitt, 1991; Hardy et al., 1994). Specifically, research has supported the notion of a hysterisis effect in basketball settings (Hardy & Parfitt, 1991; Hardy et al., 1994). Further, a limited line of research supported the interaction effects between cognitive anxiety and physiological arousal/somatic anxiety and performance (Edwards & Hardy, 1996; Hardy et al., 1994; Woodman, et al., 1997). Finally, Hardy (1996) has recently shown that catastrophe model was able to explain performance

variance in a field-based golf-putting environment. Although these results are encouraging, there are inherent limitations associated with research surrounding the model. Specifically, studies testing for the hysterisis effect have utilised exercise to induce changes in heart rate as the indicator of increased physiological arousal. Studies utilising anxiety as the mechanism for inducing increases of physiological arousal are as of yet not forthcoming, an advance that could improve the application of the model. Essentially, the catastrophe model proposes to describe the anxiety performance relationship, one could question the use of exercise to induce changes in physiological arousal. The mechanisms underpinning changes in physiological arousal via exercise are probably different to those evoked through using anxiety (Woodman & Hardy, 2001). Additionally, studies dealing with the interactive effects of cognitive anxiety and physiological arousal/somatic anxiety have tended to reveal these interactions in ways not specified by the model (Woodman & Hardy, 2001). Further, the advanced mathematical modelling (dynamical difference method) used by Hardy (1996) to examine the surface fitting properties of catastrophe model has received wide spread criticism within the field (e.g., Alexander, Herbert, DeShon & Hanges, 1992). An in-depth discussion of these criticisms is beyond the scope of this chapter, and the interested reader is referred to the work of Hardy (1996). However, concerns about the technique led Hardy (1996) to conclude that "... results do not offer any clear evidence for the superiority of either catastrophe or multidimensional anxiety theory based models of anxiety and performance." (p. 69). Finally, authors (e.g., Hardy, 1996; Woodman & Hardy, 2001) have noted that catastrophe model of cognitive anxiety, physiological arousal and performance are limited by the fact it is a model and not a theory. This dysfunction means that the model in its current form cannot explain the mechanisms through which the components may interact to effect performance. Therefore, although catastrophe model remains an interesting research area for anxiety

researchers, this thesis will utilise MAT to underpin the theoretical standpoint of the research.

2.6 ADDITIONAL DIMENSIONS TO THE ANXIETY RESPONSE

Although the advancement made through the research developments associated with MAT have increased the understanding of sport psychologists interested in the anxiety-performance relationship, criticisms have been levelled at the limited measurement approach adopted by researchers (Jones, 1991; 1995). Specifically, Jones and colleagues observed that in relation to other areas of psychology, sport has failed to consider the additional dimensions of Directional Perceptions and Frequency. The following section provides a review of these important dimensions to the anxiety response.

2.61 THE DIMENSION OF DIRECTIONAL PERCEPTIONS[2.5]

Jones (1991, 1995) criticised the 'intensity' (i.e., level) alone approach to the measurement and conceptualisation of competitive anxiety suggesting the need to consider the direction dimension of the response (i.e., the interpretation of symptom intensity as either facilitative or debilitative towards performance). Jones argued that areas such as educational psychology have long regarded the positive consequences of anxiety and identified the need to distinguish between positive and negative components of the stress relationship (Jones, 1995; cf. Lazurus, 2000).

In order to examine the efficacy of directional perceptions within competitive anxiety, Jones and Swain (1992) modified the CSAI-2 adding a debilitative-facilitative

[2.5] Please note, the review of directional perceptions literature in this Chapter provides an insight and overview of the concept. The reader will notice that as the thesis develops this dimension adopts a more sensitive role. Therefore, the specific detail of the directional perception based studies outlined here are introduced in more detail in the literature reviews of each relevant Chapter.

continuum to each item. Specifically, performers were asked to rate whether they interpreted the intensity of pre-competitive anxiety symptoms they experienced as facilitative (i.e., positive) or debilitative (i.e., negative) towards future performance. Empirical research using the modified CSAI-2 (i.e., the direction scale) has been successful in identifying several individual difference variables over and above approaches simply viewing anxiety as an intensity-based construct. Studies have revealed a consistent pattern of findings in there comparisons between elite versus non-elite performers (Jones, Hanton, & Swain, 1994; Jones & Swain, 1995), good versus bad performance (Jones, Swain, & Hardy, 1993), high versus low competitive individuals (Jones & Swain, 1992), and positive versus negative goal expectancy groups (Jones & Hanton, 1996). Specifically, whilst no significant differences have emerged in the intensity of responses between all groups, the elite, more successful performers, highly competitive individuals, and athletes within the positive expectancy group were significantly more facilitative in their interpretation of anxiety symptoms than their comparison groups.

More recently, support for the directional perceptions dimension has been provided in research assessing antecedents of responses (Hanton & Jones, 1997), sex (Perry & Williams, 1998), the acquisition and restructuring of cognitive interpretations (Hanton & Jones, 1999a, b), psychological skill usage (Fletcher & Hanton, 2001), the nature of competitive sport (Hanton, Jones & Mullen, 2000), coping strategy use (Ntoumanis & Biddle, 2000), hardiness (Hanton, Evans & Neil, 2003) and competitive trait anxiety (Hanton, Mellalieu & Hall, 2002). Additionally, Maynard and colleagues have utilised direction scores to influence intervention choice underpinned through the matching hypothesis (Maynard et al., 1995a; Maynard et al., 1995b).

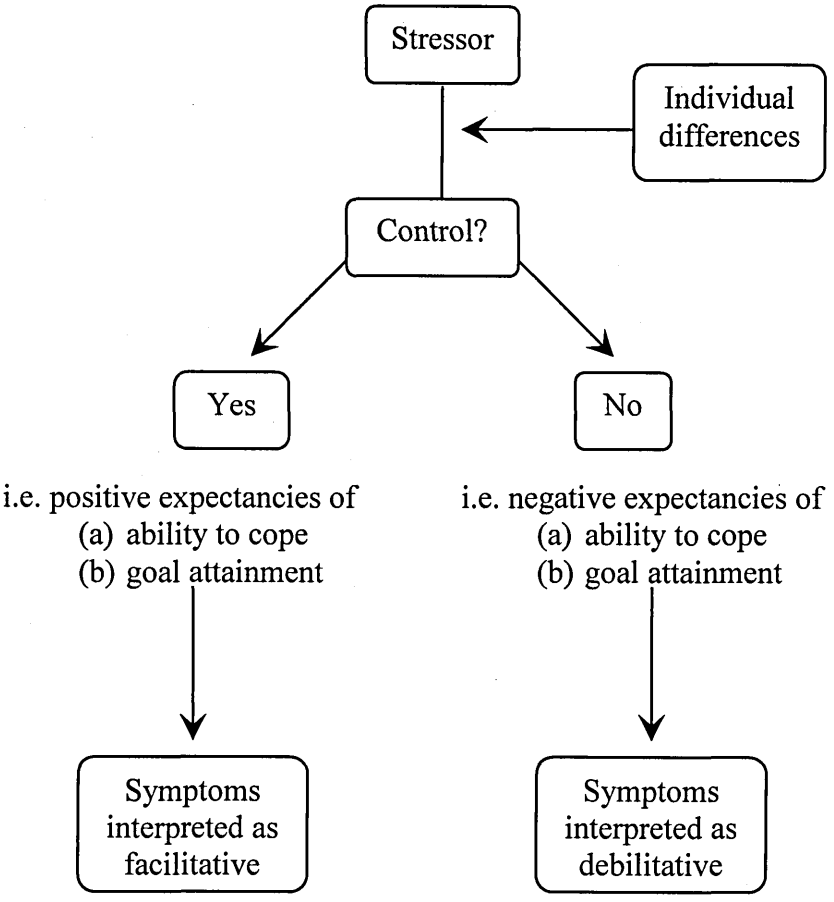

Figure 2.3: A Control Model of Facilitative and Debilitative Competitive Anxiety, (Jones, 1995).

During the development of the research body assessing the directional perceptions of competitive anxiety symptoms, Jones (1995) proposed the model of facilitative-debilitative competitive anxiety (view Figure 2.3). This model was largely based on Carver and Scheier's (1988) Control Process Model of Anxiety derived from test anxiety research. The model proposes that perceived control over coping, and goal attainment were the important factors that mediated anxiety symptom interpretations (i.e., facilitative versus debilitative). Specifically, performers showing control (a cognitive appraisal process) over the situation (i.e., coping or positive expectancy of goal achievement) were proposed to interpret competitive anxiety symptoms as facilitative towards performance (see Figure 2.3). In comparison, performers who perceived they could not cope with the situation at hand were proposed to experience negative expectations about goal attainment, and experience anxiety symptoms as debilitative towards performance. Support for the structure of the model has been provided in studies assessing state anxiety and goal attainment expectancy (Jones & Hanton, 1996), and trait anxiety and goal attainment expectancy (Hanton, O'Brien & Mellalieu, 2002).

Finally, the utilisation of direction scales has been shown to increase the accountable performance variance explained through MAT. In short, utilising a longitudinal season duration data collection, Swain and Jones (1996) indicated the direction dimensions accounted for more variance in basketball performance. Specifically, across the whole season, cognitive anxiety intensity accounted for 18.4% performance variance in comparison to 23.4% for the direction scale. For somatic anxiety, the intensity accounted for 2% of the variance in performance where as the direction scale explained 17%. Collectively, summary of all these findings indicates researchers interested in furthering the competitive anxiety domain need to take account

of the dimension of directional perceptions in additional to traditional intensity assessments.

2.62 THE DIMENSION OF FREQUENCY

Dissatisfaction with the intensity alone conceptualisation and measurement of competitive anxiety responses also provided the stimulus to assess the frequency dimension. One prediction of MAT related to the time-to-event fluctuations that can occur in cognitive anxiety, somatic anxiety and self-confidence intensity[2.6]. Specifically, Martens et al. (1990) argued that cognitive anxiety and self-confidence would remain relatively stable in the time leading up to competition where as somatic anxiety would rise just prior to the event; a pattern generally supported by early research (Gould et al., 1984; Parfitt & Hardy, 1987). However, Swain and Jones (1990, 1993) suggested that the same level of state anxiety one week before performance as at one hour before performance did not equate to a true picture of athletes emotional states; the levels merely referred to the intensity of the symptoms at two different times. To illustrate this point Swain and Jones (1990) initially added a global percentage thinking time item ("What percentage of the time is the event occupying your mind at this stage?") to the CSAI-2 with a response format of 0 to 100%. Participants completed the CSAI-2 with the modified global percentage thinking time item at the pre-event time phases of 1 week, 2 days, 1 day, 2 hours and 30 minutes before the start of competition. Separate repeated measures ANOVA's for the traditional 'intensity' dimension indicated cognitive anxiety remained stable up to the day of competition only increasing between 2 hours and 30 minutes pre-event ($P<.05$). Somatic anxiety remained stable and then increased progressively through the two stages on the day of competition ($P<.01$); where as, self-confidence remained stable apart from a decrease in levels between 2 hours and 30

[2.6] A full review of the temporal variations in competitive anxiety is covered in Section 2.8

minutes before the event ($P<.01$). This contrasted to the time-to-event changes in the global percentage thinking time item where percentage-thinking time increased progressively through each pre-competition phase. Specifically, mean scores increased from 5.7 to 15.3 to 26.1 to 59.6 and, lastly, to 82.4% over the entire pre-competition time phase ($P<.01$). This suggested that the frequency of time athletes experienced cognitions about performance was considerably more variable than the level of symptom responses they experienced.

Encouraged by these preliminary findings, Swain and Jones (1993) applied a more formal modification to the CSAI-2 noting that a limitation to their previous work was the use of a global single percentage thinking time item. Specifically, a frequency response was added to each individual item of the CSAI-2 asking the participant to respond to "How frequently do you experience this thought or this feeling at this stage?" on a Likert scale ranging from 1 ("never") to 7 ("all of the time"). This resulted in a frequency score for each of the constructs of cognitive anxiety, somatic anxiety and self-confidence ranging from 9 (low frequency) to 63 (high frequency) in place of the global percentage thinking time item. Testing through a pre-competition temporal period of 2 days (2 days, 1 day, 2 hours, 30 minutes), change-over-time comparisons between the intensity and frequency dimensions revealed dissociative patterns. Specifically, in accordance with MAT, the intensity of cognitive symptoms remained stable throughout each progressive pre-competition period; this compared to the amount of time spent thinking about cognitive symptoms (i.e., the frequency component of the response), which significantly increased through each pre-competition phase.

Patterning for somatic anxiety intensity and frequency was congruent, with both dimensions showing progressive increases through each pre-competition phase. Similar associative patterns were noted in the self-confidence construct with both the intensity and frequency of responses remaining unchanged over the 2 day pre-event period. In

summary of the findings, Swain and Jones (1993) concluded that evidence appeared to suggest a frequency dimension to the competitive anxiety response and advocated a more detailed fine-grained approach to the measurement of anxiety. Indeed, in light of the findings for the dissociative pattern of cognitive intensity and frequency they reinforced the potential important use of a frequency dimension within temporal based research designs. In view of these interesting preliminary findings it is surprising to note that the investigations of Swain and Jones (1990, 1993) have failed to receive any further research attention. The author again attributes this to the apparent lack of willingness of sport psychologists to address symptom-based research as processes that unfold over time.

This scenario is somewhat surprising given the views espoused by emotional affect researchers in general psychology and the value they place on assessing a frequency dimension. Specifically, several authors have argued that individual's are more able to accurately recall and report frequency of affect than intensity of affect (Diener, Sandevik & Pavot, 1991; Kardum, 1999; Thomas & Diener, 1990). These authors suggested that intensity information is difficult to encode because there is no natural system by which emotional intensity can be defined by the individual. Conversely, these researchers hypothesised that humans are biologically more prepared to store and review frequency based information. Diener et al. (1991) described the following situation to reinforce the argument;

> '... as one becomes more intensely joyful, it is difficult to calibrate this experience, and therefore difficult to encode the intensity accurately. How can one clearly distinguish levels of emotional intensity and encode them in comparable ways from one occasion to the next. Frequency information can be encoded because people know whether they are, happy or unhappy, joyful or fearful, whereas for intensity there is no such discrete event' (pp.121)

Further, associated research has indicted that when recalling emotional experiences, individuals are more accurate in their recall of frequency than intensity

based information. Thomas and Diener (1990) noted that individuals recorded a 78% accuracy rate in their ability to recall previously reported scores of the percentage of time they were happy, with relationships between the actual and recalled scores substantially correlating. In comparison, individuals were less accurate in their ability to recall the intensity of their emotions, with recalled estimations being almost twice the absolute value of the actual daily recorded scores with low correlations between the actual and recalled scores. In view of the importance placed on the frequency component of emotional responses in general psychology, and the interesting findings emanating from Swain and Jones' (1990, 1993) preliminary work in sport, it is somewhat surprising that additional research activity on this dimension in competitive anxiety literature has not been forthcoming. This presents a strong rationale for further examination of this dimension during the preparation phases for competition within anxiety-based research.

2.7 SUMMARY OF THEORIES, MODELS AND DEVELOPMENTS

The previous sections introduced the reader to the major developments within competitive anxiety research. Several theories and models that have been proposed to account for the anxiety-performance relationship have also been reviewed. These concepts have over several years of research been refined from unidimensional to multidimensional approaches, which have recently accounted for different dimensions of the anxiety response. Although a body of research has examined the dimension of directional perceptions, limited research attention has been devoted to the dimension of frequency (Jones, 1995; Woodman & Hardy, 2001). Furthermore, the collective examination of the three dimensions of the anxiety response; namely intensity, directional perceptions and frequency has not been undertaken within one research

programme or study. One of the general aims of this thesis is to answer the call made by Woodman and Hardy (2001) when suggesting "... anxiety researchers should employ intensity, interpretation and frequency paradigms to investigate the mechanisms underlying the anxiety performance-relationship" (pp. 302).

2.8 TEMPORAL PROCESSES IN STRESS AND ANXIETY RESEARCH: A RATIONALE FOR RESEARCH OVER TIME

The following sections of the literature review outline research that has assessed how competitive anxiety symptoms vary as a function of the stress process unfolding over-time. Specifically, the initial sections of the review outline the rationale behind examining stress, and the responses to it as constructs that vary over time. Secondly, a review of the temporal based research within competitive anxiety will be undertaken to outline research developments to date. Finally, the review concludes by identifying areas of time-to-event research where further work is required, thus highlighting the rationale behind this programme of research.

2.81 STRESS AS PROCESS OVER TIME

Within general psychology, stress is conceptualised as a process of transition between the individual and their environment (Lazarus & Folkman, 1984; Lazarus, 1999)[2.7]. As identified by Lazarus and associates, a key factor within this conceptualisation is the notion that; "The essence of stress, coping and adaptation is change... unless we focus on change we cannot learn how people come to manage

[2.7] Section 2.22 defined stress within the context of sport psychology research and this thesis.

stressful events and conditions" (Folkman & Lazarus, 1985; pp. 150). Therefore, stress, and the reactions to it should be considered as processes that unfold over time (Cerin, Szabo, Hunt, & Williams, 2000; Cerin, Szabo & Williams, 2001; Lazarus, 1999). To emphasise this point, Cerin et al. (2000) recently introduced an interactional model of stress as applied to athletic competition (Figure 2.4) based on the previous models of stress proposed by Lazarus (1999) and Hardy et al. (1996). The distinguishing factor of Cerin et al.'s. (2000) model was the notion that the whole stress process should be viewed as temporal because reactions to stress (i.e., symptoms of competitive anxiety), appraisal of the stressor, use of coping strategies and the situational variables that effect stress, all encompass change over time. Another fundamental component to the model was the view that reactions to stress can be viewed as responses that include an intensity and frequency component, key dimensions when examining stress reactions over time.

Cerin et al. (2000) argued that these temporal components of the stress response model have been largely overlooked in sport psychology with investigations focusing solely on reaction intensity to the neglect of other temporal dimensions; namely the dimension of frequency. Additionally, Cerin et al. (2000) suggested researchers have focused on examining athletes' stress responses to single competitions at one time frame immediately before the event ignoring the temporal characteristics of the stress process during preparation phases for competition. Although the author concurs with Cerin et al.'s. views for further research on the possible temporal patterns of the frequency dimension, this author suggests this set of principles should also apply to the direction dimension of the response. Indeed, an examination of the literature base for temporal fluctuations in the symptoms of competitive anxiety indicates a concentration of research within the intensity dimension, with little, or no consideration given to how the additional dimensions of directional perceptions and frequency may change as processes over time during the preparation phases for competition.

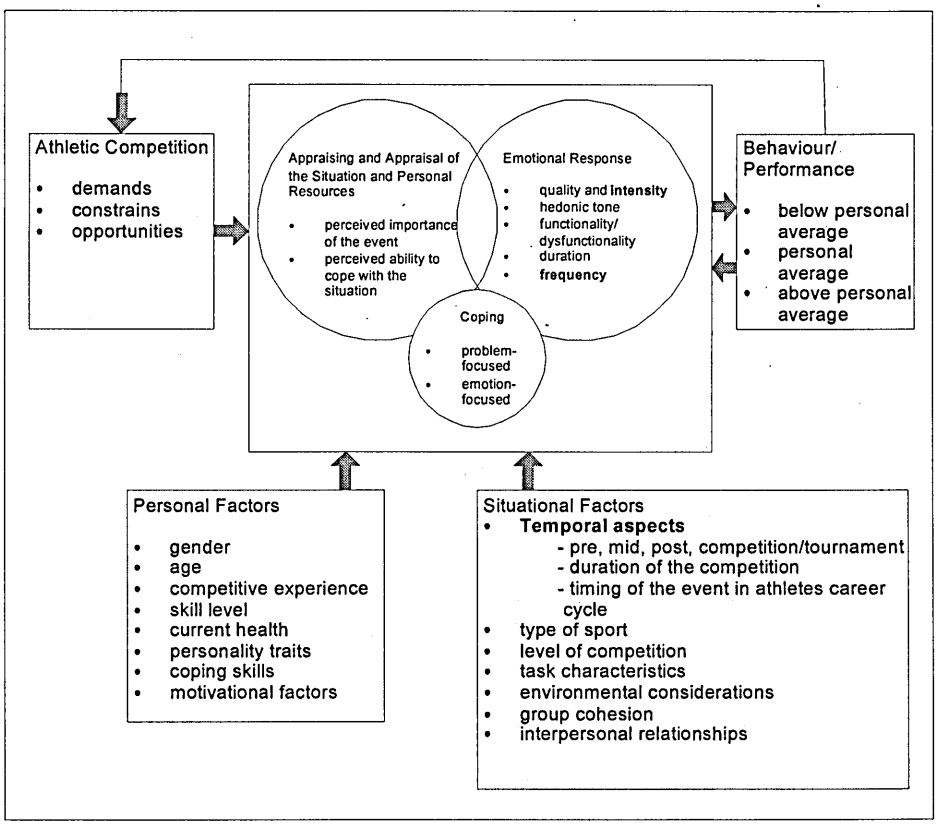

Figure 2.4 : An Interactional Model of Stress as Applied to Athletic Competition (Cerin et al., 2000)

2.82 TEMPORAL PATTERNING OF UNIDIMENSIONAL ANXIETY

Early research examining time-to-event changes in competitive anxiety were conducted from a unidimensional perspective that acknowledged Mandler and Sarason's (1952) distinction between general and specific anxiety, and Speilberger's (1966) differentiation between trait and state anxiety. The instruments used to calculate state anxiety in these research programmes were either specifically constructed self-report questionnaires, Speilberger's State-Trait Anxiety Inventory (STAI), or the Competitive State Anxiety Inventory (CSAI; Marterns et al., 1980) a modified version of the STAI for use in sport settings. Table 2.1 outlines the results of studies examining temporal changes in unidimensional anxiety, listing the average value of anxiety levels (if available) for the pre-competition and post-competition (if considered) stages assessed, the statistical significance of any change over time across the pre and/or post (if applicable) time phases considered, and outlines any moderator variables that affected changes in anxiety levels.

A summary of the change-over-time effects within Table 2.1 generally indicates state anxiety levels increased as competition approached (Donzelli, Dugoni, & Johnson, 1990; Gal-Or, Tenenbaum, & Shimrony, 1986; Gould, Horn, & Spreemann, 1983; Gould, Weiss, & Weinberg, 1981; Highlen & Bennett, 1979; Huband & McKelvie, 1986; Huddleston & Gill, 1981). These pre-competition increases ranged from time periods within 1 week to 1 day before the event (Donzelli et al., 1990; Gal-or et al., 1986; Gould et al., 1981, 1983; Highlen & Bennett, 1979), 1 day to 12 hours before competition (Donzelli et al., 1990), 1 day to 1 hour before the event (Donzelli et al., 1990; Gal-or et al., 1986; Gould et al., 1981, 1983), 1 day to immediately before competition (Donzelli et al., 1990; Gal-or et al., 1986; Gould et al., 1981, 1983; Huband & McKelvie, 1986), and 1 hour to immediately before the event (Donzelli et al., 1990; Gould et al., 1981, 1983).

Table 2.1: Studies Results for Temporal Assessment of Unidimensional Anxiety

Authors	Inventory	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase					In event	Post competition phase		Moderators
				1 wk	1 d	12 hr	1 hr	i.b.		i.a.	1 d	
Donzelli et al. (1990)[a]	7 point 6 item scale	233 (m, f)	Runners	2.05	3.13	3.39	4.27	4.72	3.52			sex[d], success[c,d], experience[d], age, A-trait[c,d]
Gal-or et al. (1986)	10 point 1 item scale	56 (m, f)	Orienteers	1.58	2.97↑		4.80↑	4.50				skill[c]
Hall (1980)	STAI	64 (m, f)	Motor task					39.22		41.31		A-trait[c], locus of control[c], success[c,d]
Highlen & Bennett (1979)	11 point 7 item scale	40	Wrestlers	[e]	[e]↑				[e]↑			skill[c]

Table Descriptors

STAI	= State-Trait Anxiety Inventory (Speilberger, 1970)	[a]	= Main effect for time no inter period change reported
CSAI	= Competitive State Anxiety Inventory (Martens, 1970)	[b]	= No change-over-time statistic reported, only descriptive values given
wk	= Week	[c]	= Moderator significantly affected anxiety levels
d	= Day	[d]	= Interaction between moderator and time-to-competition
hr	= Hour	[e]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase

Table 2.1 (continued): Studies Results for Temporal Assessment of Unidimensional Anxiety

Authors	Inventory	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase					In event	Post competition phase		Moderators
				1 wk	1 d	12 hr	1 hr	i.b.		i.a.	1 d	
Huband & McKelvie (1986)	CSAI	42 (m, f)	Basketball, hockey		16.12			21.36↑		18.22↓	13.29↓	A-trait[c,d]
Huddleston & Gill (1981)	CSAI	19 (f)	Track and Field	20.7				21.7	29.4↑			
Gould et al. (1981)[b]	11 point 7 item scale	50	Wrestling	4.21	7.00		8.78	9.38	5.98			

Table Descriptors

STAI	= State-Trait Anxiety Inventory (Speilberger, 1970)	*a*	= Main effect for time no inter period change reported
CSAI	= Competitive State Anxiety Inventory (Martens, 1970)	*b*	= No change-over-time statistic reported, only descriptive values given
wk	= Week	*c*	= Moderator significantly affected anxiety levels
d	= Day	*d*	= Interaction between moderator and time-to-competition
hr	= Hour	*e*	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase

Table 2.1 (continued): Studies Results for Temporal Assessment of Unidimensional Anxiety

Authors	Inventory	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase					In event	Post competition phase		Moderators
				1 wk	1 d	12 hr	1 hr	i.b.		i.a.	1 d	
Gould et al. (1983)[b]	11 point 7 item	464	Wrestling	4.46	6.87		8.22	9.27	5.62			A-trait[c,d]
Sanderson & Reilly (1983)	STAI	64 (m, f)	X-country running					47.85		37.05↓		A-trait[c], race position[c]

Table Descriptors

STAI	= State-Trait Anxiety Inventory (Speilberger, 1970)	[a]	= Main effect for time no inter period change reported
CSAI	= Competitive State Anxiety Inventory (Martens, 1970)	[b]	= No change-over-time statistic reported, only descriptive values given
wk	= Week	[c]	= Moderator significantly affected anxiety levels
d	= Day	[d]	= Interaction between moderator and time-to-competition
hr	= Hour	[e]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase

Although discrepancies can be found from this general pattern, the main body of research indicates that as competitive events draw closer athletes' levels of unidimensional anxiety increase. This contrasts to the levels of anxiety that athletes experience once the event has started; it appears that once athletes enter the competitive arena their experiences of anxiety decrease below pre-competition levels (Donzelli et al., 1990). Furthermore, it appears that once the performer has finished competing, state anxiety levels tend to dissipate to levels below pre-competition anticipatory levels (Huband & McKelvie, 1986; Sanderson & Reilly, 1983).

Several variables moderated anxiety levels throughout a temporal period (e.g., A-trait, sex, experience, locus of control and skill level). Although these findings regarding temporal changes of anxiety are informative, limitations exist regarding their relevance to the current competitive anxiety literature base. As noted in Section 2.5 the research domain shifted in the late 1980's and 1990's to conceptualise competitive anxiety as a multidimensional construct. The work of Martens et al. (1990) through the development of the CSAI-2 helped transfer a multidimensional framework to temporal based competitive anxiety research advancing the research area beyond the rather limited unidimensional view of anxiety.

2.83 TEMPORAL PATTERNING OF MULTIDIMENSIONAL ANXIETY

The multidimensional conceptualisation of competitive anxiety and Martens et al.'s. (1990) associated work on MAT and the CSAI-2 resulted in the notion that competitive anxiety was separated into the three constructs of cognitive anxiety, somatic anxiety and self-confidence. The temporal fluctuations of these three constructs will be reviewed separately using the same format adopted in the unidimensional review. Additionally, following a review of the temporal patterns of each construct, a brief

review of the variables that have been shown to moderate anxiety and confidence levels and the patterns they display over time will be described.

2.831 TEMPORAL PATTERNS IN COGNITIVE ANXIETY

Martens et al. (1990) originally predicted that temporal changes in cognitive anxiety would remain unchanged in the time leading up to competition as long as the athletes' evaluation of performance expectancies remained unchanged. Several of the studies listed in Table 2.2 support these predictions (Caruso, Dzewaltowski, Gill, & McElroy, 1990; Gould, et al., 1984; Krane & Williams, 1987; Martens et al.'s., 1990 study 1 and 2; Wiggins, 1998). However, the consistency of this support has remained equivocal. Three of studies indicated a significant main effect for time without reporting the inter assessment period changes (Davids & Gill, 1995; Hall, Kerr, & Matthews, 1998; Jones & Cale, 1989b; Jones, Swain, & Cale, 1991), and three of the studies noted an increase in cognitive anxiety in the early stages of the week leading up to an event (Campbell & Jones, 1995, 1997; Perkins & Williams, 1994). However, perhaps the most compelling findings from Table 2.2 are derived from the work of Slaughter, Selder, and Paterson (1994), and the studies of Swain and Jones (1990, 1991, 1992, 1993) whose results suggested that fluctuations in cognitive anxiety are most likely to occur at times just prior to competition. Explanations for these contradictory findings could be attributed to Martens et al.'s. (1990) proposals regarding an athletes evaluation of performance expectancy and its effect as a moderating variable over cognitive anxiety. Specifically, Jones et al. (1991) examined expectations of performance and competitive anxiety as temporal processes with respect to the variable of sex. Their findings indicated males did not show changes in cognitive anxiety or expectations of success in the time leading up to the event where as, female athletes displayed an increase in cognitive anxiety between 2 hours and 30 minutes before

Table 2.2: Studies Results for Temporal Assessment of Multidimensional Anxiety - Cognitive Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Campbell & Jones (1995)	103	Various (disabled)		[d]			[d]↑		[d]			skill[b, c]
Campbell & Jones (1997)	103 (m, f)	Various (disabled)		19.18			20.68↑		21.65			
Caruso et al. (1990)	24 (m)	Cycling task							11.83	12.42	12.17	competition *vs* non-competition[b, c], success *vs* failure[b, c]
Davids & Gill (1995)[a]	11 (m)	Hockey			15.5		16.9		18			conditioned competitive stress[b, c]

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.2 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Cognitive Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Gould et al. (1984)	63 (f)	Volleyball		*d*	*d*	*d*	*d*		*d*			experience
Hall et al. (1998)[a]	119 (m, f)	X-country running		17.68	17.72	19.08		20.36				perfectionism[b, c]
Jones & Cale (1989b)[a]	40 (m, f)	Various	14.7	15.6	16.28	17.23	17.73		18.53			sex[b, c]
Jones & Cale (1997)	44 (m, f)	Perceptual task							11.28	13.6	12.93	goal setting[b], subjective goal difficulty[b]
Jones et al. (1988)	12 (m)	Cricket		*d*	*d*		*d*	*d*				

Table Descriptors

wk	= Week	*b*	= Moderator significantly affected anxiety levels
d	= Day	*c*	= Interaction between moderator and time-to-competition
hr	= Hour	*d*	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
a	= Main effect for time no inter period change reported		

Table 2.2 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Cognitive Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Jones et al. (1991)[a]	56 (m, f)	Various		19.27	19.13	19.07	20.25		21.15			sex[b, c], perceived readiness[b, c] match importance[b], perceived success[b]
Karteroliotis & Gill (1987)	41 (m)	Motor task		[d]					13.14	14.80↑	13.39↓	
Krane & Williams (1987)	80 (f)	golf, gymnastics				[d]		[d]	[d]			sport type[b, c]
Martens et al. (1990 study 1)	45 (m)	Wrestling		18.29	17.2	16.84	16.49	17.16				

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.2 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Cognitive Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Martens et al. (1990 study 2)	40 (m, f)	Gymnastics		18.28		17.15	16.5		17.1			
Masters et al. (1995)	22 (m, f)	Various	17.5			19.4 ↑						
Nordell & Sime (1993)	20 (f)	Swimmers				16.25		17.85 ↑				competitive stress[b]
Perkins & Williams (1994)	18	Abseiling		[d]		[d]↑		[d]	[d]			skill level[b, c]

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.2 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Cognitive Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Slaughter et al. (1994)	110 (m, f)	Basketball			[d]	[d]	↑	↑			↓	sex[b, c]
Swain & Jones (1990, study 1)	60 (m)	Track and field		[d]	[d]	[d]	[d]		[d]↑			
Swain & Jones (1990, study 2)	49	Track and field			[d]	[d]	[d]		[d]↑			
Swain & Jones (1991)[a]	97 (m, f)	Track and field		16.97	17.76	18.17	19.01		19.72			gender endorsement[b, c]

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.2 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Cognitive Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Swain & Jones (1992)	60	Track and field		16.78	17.24	17.50	17.26		18.39↑			competitiveness[b, c]
Swain & Jones (1993)	49 (m, f)	Track and field			16.53	16.88	17.37		17.65↑			sex
Wiggins (1998)	91 (m, f)	Various				18.66	18.60		18.97			sex[b]

Table Descriptors

wk	= week	[b]	= Moderator significantly affected anxiety levels
d	= day	[c]	= Interaction between moderator and time-to-competition
hr	= hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

competition. Interestingly, in support of Martens et al.'s. (1990) predictions, the females expectation of success decreased, and their ratings of opposition strength increased between such times, variables which impinge on evaluation of performance expectancy. However, the study of Jones et al. (1991) is the only work to consider changes in expectancy of performance a possible limitation to the application of the proposal. Therefore, there still remain questions about the strength of Martens prediction and the stability of cognitive anxiety as competition approaches. Table 2.2 also lists other moderating variables that have influenced the magnitude of cognitive anxiety levels and the pattern of cognitive anxiety over time.

2.832 VARIABLES THAT MODERATE THE LEVELS AND TEMPORAL PATTERNING OF COGNITIVE ANXIETY

In addition to expectancy of performance, several variables have been shown to moderate anxiety levels and how the construct is patterned over time (view Table 2.2). Perhaps the most researched of these variables has been sex, with several studies noting that males and females experience different levels of cognitive anxiety[2.8] (Jones & Cale, 1989b; Jones et al., 1991; Slaughter et al., 1994; Wiggins, 1998), and that their patterning of cognitive anxiety is differential as competition moves closer[2.9] (Jones & Cale, 1989b; Jones et al., 1991; Slaughter et al., 1994). The difference in levels of cognitive anxiety indicates that females experience higher levels of cognitive anxiety than males during the time leading up to competition (Jones & Cale, 1989b; Jones et al., 1991; Slaughter et al., 1994; Wiggins, 1998). With regard to the patterning of cognitive anxiety males have indicated a more stable pattern of responses and highlighted no increases in cognitive anxiety as the competition neared (Jones & Cale, 1989b; Jones et al., 1991). In comparison, females have displayed an increase in cognitive anxiety

[2.8] Noted in Table 2.2 by a main effect for the moderator variable

[2.9] Noted in Table 2.2 by an interaction between the moderator variable and time-to-competition

through 1 day to 2 hours before an event (Jones et al., 1991), and between 2 hours and 30 minutes before competing (Jones & Cale, 1989b; Jones & Swain, 1991; Slaughter et al., 1994). As an advance from a simple sex comparison, Swain and Jones (1991) examined the effect of gender role endorsement on responses arguing that a distinction on the psychological traits of masculinity and femininity could be more accurate than a simple sex distinction. When comparing masculine males and females to feminine males and females' differences existed in the four groups for levels and patterns of cognitive anxiety. Specifically, masculine males showed lower levels of cognitive anxiety than the other three groups, and masculine females showed lower levels than both the feminine males and females throughout the pre-competition period. Additionally, masculine males and females displayed no progressive increases on cognitive anxiety where as the feminine males showed increases in cognitive anxiety as the competition neared with feminine females highlighting progressive increases through the pre-competition period. These differential levels and patterns indicated that gender role endorsement may play an important part as a variable for describing cognitive anxiety responses over and above the use of sex *per se*.

Skill level also emerges from Table 2.2 as an important variable to moderate cognitive anxiety (Campbell & Jones, 1995; Perkins & Williams, 1994). Specifically, higher skilled athletes displayed lower levels of cognitive anxiety than lower skilled athletes (Perkins & Williams, 1994),and showed no change over time effects of cognitive anxiety in comparison to increases in cognitive anxiety observed in the lower skilled athletes (Campbell & Jones, 1995; Perkins & Williams, 1994). These patterns of results have also been noted in the temporal examination of unidimensional anxiety (Gal-or et al., 1986). Table 2.2 lists several other variables that have been shown to moderate over cognitive anxiety levels and its pattern as competition approaches.

However, a complete review of these is beyond the scope of this chapter and the reader is referred to each of the individual research programmes for further information.

2.833 TEMPORAL PATTERNS IN SOMATIC ANXIETY

The empirical studies listed in Table 2.3 tended to provide support for Martens et al.'s. (1990) predictions that somatic anxiety intensities would increase at times prior to competition. Specifically, of the studies reporting the change-over-time effects between each phase of assessment, the majority recorded an increase in somatic anxiety levels on the day of competition (Campbell & Jones, 1997; Caruso et al., 1990; Gould et al., 1984; Jones et al., 1991; Krane & Williams, 1991; Martens et al., 1990 study 1 and 2; Slaughter et al., 1994; Swain & Jones, 1990 studies 1 and 2; Swain & Jones 1991; Swain & Jones, 1992; Swain & Jones, 1993; Wiggins, 1998). However, increases in somatic anxiety have been reported at times further away from the onset of competition. For example, Perkins and Williams (1994) and Swain and Jones (1990; 1993) noted an increase in somatic anxiety leading up to one day before competition; interestingly in all of these studies this earlier increase was followed by a further increase when measuring somatic anxiety on the day of competition. The reasons for this earlier increase in somatic anxiety could be explained by the associated research on variables that moderate somatic anxiety levels and its patterning as competition moves closer. Finally, the research of Karteroliotis and Gill (1987) indicated that somatic anxiety levels tend to dissipate following the competitive event.

2.834 VARIABLES THAT MODERATE THE LEVELS AND TEMPORAL PATTERNING OF SOMATIC ANXIETY

Sex, and gender role endorsement are the moderator variables that have received the most research attention for their impact on somatic anxiety levels and its patterning

Table 2.3: Studies Results for Temporal Assessment of Multidimensional Anxiety - Somatic Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Campbell & Jones (1995)	103	Various (disabled)		[d]			[d]		[d]			skill
Campbell & Jones (1997)	103 (m, f)	Various (disabled)		13.64			17.59↑		27.72↑			
Caruso et al. (1990)	24 (m)	Cycling task							12.60	15.17↑	15.88	competition *vs* non-competition, success *vs* failure
Davids & Gill (1995)[a]	11 (m)	Hockey			10.4		13.7		15.1			conditioned competitive stress[b, c]

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.3 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Somatic Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Gould et al. (1984)	63 (f)	Volleyball		15.09	15.02	14.49↓	16.24↑		18.32↑			experience
Hall et al. (1998)[a]	119 (m, f)	X-country running		14.88	14.98	17.78			19.54			perfectionism
Jones & Cale (1989b)[a]	40 (m, f)	Various	10.63	10.43	10.83	11.6	13.75		16.2			sex[b, c]
Jones & Cale (1997)	44 (m, f)	Perceptual task							11.16	11.75	11.1	goal setting, subjective goal difficulty
Jones et al. (1988)	12 (m)	Cricket			10.92	12.00		14.58 ↑	18.33 ↑			

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.3 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Somatic Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Jones et al. (1991)	56 (m, f)	Various		12.16	11.48	12.24	15.52↑		18.29↑			sex, rating of opposition[b]
Karteroliotis & Gill (1987)	41 (m)	Motor task		[d]					12.51	13.68↑	10.9↓	
Krane & Williams (1987)	80 (f)	golf, gymnastics				[d]		↑	[d]			sport type[b, c]
Martens et al. (1990 study 1)	45 (m)	Wrestling			16.13	16.60	18.42	18.27	21.89↑			

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.3 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Somatic Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Martens et al. (1990 study 2)	40 (m, f)	Gymnastics		14.08		13.85	17.53 ↑		16.80			
Masters et al. (1995)	22 (m, f)	Various	12.97			14.75 ↑						
Nordell & Sime (1993)	20 (f)	Swimmers										
Perkins & Williams (1994)	18	Abseiling		[d]		[d] ↑		[d] ↑	[d]			skill level[b, c]

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.3 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Somatic Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Slaughter et al. (1994)	110 (m, f)	Basketball			[d]	[d]	[d] ↑	[d] ↑	[d] ↑			sex[b, c]
Swain & Jones (1990, study 1)	60 (m)	Track and field		[d]	[d]	[d]	[d] ↑		[d] ↑			
Swain & Jones (1990, study 2)	49	Track and field			[d]	[d] ↑	[d] ↑		[d] ↑			
Swain & Jones (1991)	97 (m, f)	Track and field		10.32	10.88	12.14	16.08 ↑		19.27 ↑			gender endorsement[b, c]

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.3 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Somatic Anxiety

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Swain & Jones (1992)	60	Track and field		10.94	11.53	13.00	16.50 ↑		19.55 ↑			competitiveness[b, c]
Swain & Jones (1993)	49 (m, f)	Track and field			11.49	13.08 ↑	16.80 ↑		19.63 ↑			sex[b]
Wiggins (1998)	91 (m, f)	Various				13.64	15.32 ↑	16.47 ↑				sex

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

over time (view Table 2.2). Specifically, research has indicated that sporting females and athletes with feminine gender role endorsements can experience higher levels of somatic anxiety during pre-competition times (Jones & Cale, 1989b; Slaughter et al., 1994; Swain & Jones, 1991, 1993). Further, female competitors and athletes with feminine gender role have displayed increases in somatic anxiety symptoms at earlier pre-competition times than males (Jones & Cale, 1989b; Swain & Jones, 1991), and symptom increases that are far greater than those displayed by males at times close to competition (Slaughter et al., 1994). These results partially explain the discrepant findings regarding Martens et al.'s. (1990) predictions for somatic anxiety as the event draws closer. However, caution should be advised in this assertion. There are examples of research in Table 2.3 that suggested no main or interaction effects for sex over somatic anxiety responses over time indicating that the examination of other moderator variables is important (e.g., Jones et al., 1991; Wiggins, 1998). Several additional variables that have exerted an influence over somatic anxiety include sport type (Krane & Williams 1987), skill level (Perkins & Williams, 1994), conditioned competitive stress (Davids & Gill, 1995) and competitiveness (Swain & Jones, 1992). The reader is referred to each of these studies for further information. However, it is important for investigators interested in examining responses over time to acknowledge the confounding effect such variables may have on anxiety data.

2.835 TEMPORAL PATTERNS IN SELF-CONFIDENCE

A further prediction of Martens et al.'s (1990) MAT theory was that levels of self-confidence would remain relatively stable during the preparation time for competition. Several of the studies listed in Table 2.4 supported this contention and displayed no changes in the response pattern of self-confidence intensity as competition approached (Campbell & Jones, 1995; Gould et al., 1984; Jones et al., 1991; Krane &

Table 2.4: Studies Results for Temporal Assessment of Multidimensional Anxiety - Self Confidence

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Campbell & Jones (1995)	103	Various (disabled)		[d]			[d]		[d]			skill
Campbell & Jones (1997)	103 (m, f)	Various (disabled)		24.81			26.85 ↑		23.33 ↓			
Caruso et al. (1990)	24 (m)	Cycling task							28.57	26.83 ↓	29.95	competition *vs* non-competition, success *vs* failure[b, c]
Davids & Gill (1995)	11 (m)	Hockey			29.60		28.10		27.30 ↓			conditioned competitive stress[b, c]

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.4 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Self Confidence

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Gould et al. (1984)	63 (f)	Volleyball		[d]	[d]	[d]	[d]		[d]			experience
Hall et al. (1998)[a]	119 (m, f)	X-country running		24.52	25.77	22.83			21.91			perceived ability[b, c]
Jones & Cale (1989b)	40 (m, f)	Various	30.35	30.18	30.40	29.78	28.65		27.55			Sex[b, c]
Jones & Cale (1997)	44 (m, f)	Perceptual task							28.33	26.77	28.05	Goal setting[b], subjective goal difficulty[b]
Jones et al. (1988)	12 (m)	Cricket			26.58	25.25		25.17	22.42 ↓			

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.4 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Self Confidence

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Jones et al. (1991)	56 (m, f)	Various		27.68	27.97	27.52	25.81		24.82			Sex[b], perceived readiness[b], perceptions of success[b]
Karteroliotis & Gill (1987)	41 (m)	Motor task		[d]					[d]	26.65	28.53 ↑	
Krane & Williams (1987)	80 (f)	golf, gymnastics				[d]		[d]	[d]			Sport type[b]
Martens et al. (1990 study 1)	45 (m)	Wrestling			25.16	24.84	24.33	24.98	23.67			

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.4 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Self Confidence

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Martens et al. (1990 study 2)	40 (m, f)	Gymnastics		24.35		25.75	24.25		24.83			
Masters et al. (1995)	22 (m, f)	Various	27.75			23.6 ↓						
Nordell & Sime (1993)	20 (f)	Swimmers				-		-				
Perkins & Williams (1994)	18	Abseiling		*d*		*d*		*d*	*d*			skill level[b, c]

Table Descriptors

wk	= Week	*b*	= Moderator significantly affected anxiety levels
d	= Day	*c*	= Interaction between moderator and time-to-competition
hr	= Hour	*d*	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
a	= Main effect for time no inter period change reported		

Table 2.4 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Self Confidence

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Slaughter et al. (1994)	110 (m, f)	Basketball			[d]	[d]	[d]	↑			↑	Sex[b, c]
Swain & Jones (1990, study 1)	60 (m)	Track and field		[d]	[d]	[d]	↓		↓			
Swain & Jones (1990, study 2)	49	Track and field			[d]	[d]	[d]		[d]			
Swain & Jones (1991)[a]	97 (m, f)	Track and field		26.85	26.51	25.81	23.83		22.67			Gender endorsement[b, c]

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Table 2.4 (continued): Studies Results for Temporal Assessment of Multidimensional Anxiety - Self Confidence

Authors	*N* (Sex; m = male, f = female)	Sample/ Task	Pre-competition phase							In event	i.a. event	Moderators
			2 wk	1 wk	2 d	1 d	2 h	1 hr	i.b.			
Swain & Jones (1992)	60	Track and field		26.28	26.83	26.70	25.49 ↓		24.63 ↓			competitiveness[b]
Swain and Jones (1993)	49 (m, f)	Track and field			25.31	25.12	24.53		24.78			sex
Wiggins (1998)	91 (m, f)	Various				25.54	25.08		24.79			sex

Table Descriptors

wk	= Week	[b]	= Moderator significantly affected anxiety levels
d	= Day	[c]	= Interaction between moderator and time-to-competition
hr	= Hour	[d]	= Time of assessment but no mean value reported
i.b.	= Immediately before the event	↑	= Significant increase in anxiety levels from previous phase
i.a.	= Immediately after the event	↓	= Significant decrease in anxiety levels from previous phase
[a]	= Main effect for time no inter period change reported		

Williams, 1987; Martens et al., 1990 study 1 and 2; Swain & Jones, 1990 study 2; Swain & Jones 1993; Wiggins, 1998). However, other research programmes listed in Table 2.4 indicated that self-confidence levels fluctuated as the athlete neared competition. Specifically, self-confidence levels decreased at times close to competition in the studies conducted by Campbell and Jones (1997), Davids and Gill (1995), Swain and Jones (1990 study 1), and Swain and Jones (1992). Examination of the variables that moderate self-confidence responses will possibly explain the contradictory findings noted above.

2.836 VARIABLES THAT MODERATE THE LEVELS AND TEMPORAL PATTERNING OF SELF CONFIDENCE

An athlete's skill level has been shown to moderate responses of self-confidence. The work of Perkins and Williams (1994) indicated that athletes with higher skill levels displayed higher levels of self-confidence throughout pre-competition times and showed no change-over-time decreases in self-confidence as competition approached. Where as, levels of self-confidence in the lesser skilled athletes tended to decrease as the competitive event approached. The skill level of athletes in the studies of Campbell and Jones (1997), Davids and Gill (1995), Swain and Jones (1990 study 1), and Swain and Jones (1992) ranged from lower skilled athletes to university grade participants realising a plausible link to the skill level findings of Perkins and Williams (1994). However, although plausible, direct conclusions for the afore mentioned studies cannot be inferred. Specifically, none of the studies screened their data for the between subjects factor of skill level. Related to these findings, variables of perception of success and failure (Caruso et al., 1990; Jones et al., 1991) and perceived ability (Hall et al., 1998) have been observed to moderate self-confidence levels.

Sex has also been observed to moderate over self-confidence responses. Specifically, males have shown higher levels of self-confidence throughout pre-competition times (Jones et al., 1991), and at times close to the event (Jones & Cale, 1989b). Furthermore, Slaughter et al., (1994) observed differential patterning for self-confidence between the sexes; specifically, females displayed a decrease in self-confidence and males an increase at times close to the event. Additional variables that have indicated a moderating effect over self-confidence levels include conditioned stress (Davids & Gill, 1995), perceived readiness (Jones et al., 1991), sport type (Krane & Williams, 1998), and competitiveness (Swain & Jones, 1991).

2.84 TEMPORAL VARIATIONS IN THE ADDITIONAL DIMENSIONS OF MULTIDIMENSIONAL COMPETITIVE ANXIETY: A LACK OF RESEARCH ACTIVITY

The dimensions of directional perceptions and frequency were introduced in Sections 2.61 and 2.62 respectively. The advent of these new dimensions and there impact on our understanding of the concept of competitive anxiety has been beneficial. However, as noted by Woodman and Hardy (2001) the volume of research pertaining to directional perceptions has grown to a far greater and deeper extent than the volume on the dimension of frequency. The following section of the literature review examines the use of a temporal process-orientated research design to these additional dimensions of competitive anxiety, and identifies a paucity of research utilising this type of methodological approach.

2.841 TEMPORAL VARIATIONS IN THE DIMENSION OF DIRECTIONAL PERCEPTIONS

The body of research pertaining to directional perceptions has tended to focus on the moderating effect of several individual difference variables and the impact these have on the athlete's ability to interpret the symptoms associated with competitive anxiety as facilitative or debilitative towards future sports performance (see Section 2.61). However, this volume of research has focused on examining the symptoms of competitive anxiety at times immediately before competition (i.e., within 30 minutes); little or no consideration has been given to the possible temporal fluctuations that may exist in the dimension of directional perceptions. The author considers this a limitation to the directional perceptions literature base considering the importance placed on examining the temporal processes of the competitive stress response espoused earlier in this review and by researchers such as Cerin et al. (2000, 2001) and Lazarus (1999, 2000). As far as the author is aware, only one research paper has empirically measured directional perceptions as a function of time-to-competition, namely the work of Wiggins (1998).

Wiggins (1998) examined the fluctuations of anxiety intensities and directional perceptions using the modified CSAI-2 (Jones & Swain, 1992) through a 24-hour time-to-event paradigm (24, 2 and 1 hour pre-competition). Results revealed significant increases for somatic anxiety, significant decreases for self-confidence and no change over time effects for cognitive anxiety within the intensity dimension. In comparison, analysis of the direction dimension revealed no time to event fluctuations for any symptom of anxiety. Wiggins (1998) concluded that early indications suggested once athletes had appraised their anxiety symptoms as either facilitative or debilitative towards performance, their interpretation remained consistent prior to competition. However, there are limitations to this assertion. A temporal preparation phase of 24

hours places constraints on the development of detailed patterns of pre-competition symptomatology, and seems limited in comparison to the intensity based temporal research listed in Tables 2.2, 2.3 and 2.4. Indeed, Wiggins (1998) identified this as a weakness within his approach. The use of a one week pre-competition preparation phase, the predominant time-to-event phase listed in Tables 2.2, 2.3 and 2.4 would allow a more detailed picture to emerge regarding fluctuations in anxiety and confidence perceptions as competition nears. There is scope for further research addressing possible time-to-event fluctuations in directional perceptions, especially research that extends the pre-competition preparation time phase leading up to the event.

2.842 TEMPORAL VARIATIONS IN THE DIMENSION OF FREQUENCY

The body of research addressing the dimension of frequency of competitive anxiety symptoms remains limited to the preliminary work of Swain and Jones (1990, 1993; view Section 2.62 for review). These studies indicated the frequency dimension appears to be more variable and sensitive to change-over-time than symptom intensity. However, as with the work of Wiggins (1998), Swain and Jones' (1993) utilised a limited time-to-event period that focused on 2 days before a competitive event. Therefore, scope exists to extend the temporal time-period to further away from the event. Additionally, if one considers the lack of research activity examining the frequency dimension in conjunction to the importance general psychologists appear to attach to a frequency component of affective responses (Diener et al., 1991; Kardum, 1999; Thomas & Diener, 1990) there is a need for further research surrounding the dimension.

2.9 SUMMARY OF THE LITERATURE REVIEW

This literature review has attempted to provide a critical overview of competitive anxiety research and the conceptual and theoretical underpinning of the anxiety-performance relationship as sport psychology has advanced as a discipline over the last 40 years. The review has directed the reader through the major developments of general arousal based approaches, the shift to view competitive anxiety as multidimensional rather than a unidimensional concept and, introduced the most recent advance of viewing competitive anxiety responses through the different dimensions of intensity, directional perceptions and frequency. The review also leaned on Lazarus' (1982, 1993, 1999, 2000) standpoint that the stress process should be viewed through a temporal paradigm and provided a detailed view of time-to-event based research in the 'traditional' intensity dimension of competitive anxiety. The review closed by identifying a lack of consideration to temporal based research designs following the advent of the dimensions of directional perceptions and frequency of competitive anxiety.

Summary of the research area to date, indicates there is a dearth of empirical research activity that has examined the dimensions (intensity, direction, frequency) collectively during preparation phases for competition. Thus, the rationale underpinning the general aims of the thesis relates to two standpoints. First, the call by Woodman and Hardy (2001) for researchers to integrate the dimensions of intensity, directional perceptions and frequency into one research programme. Second, the views of Cerin et al. (2001) and Lazarus (1983, 1993, 1999, 2000) that researchers interested in the stress process need to utilise temporal based research designs in order to asses essential reactions that unfold over time during the preparation time for significant events (i.e., competition).

CHAPTER III

STUDY ONE

COMPETITIVE ANXIETY RESPONSES IN THE WEEK LEADING UP TO COMPETITION: THE ROLE OF INTENSITY, DIRECTION AND FREQUENCY DIMENSIONS[3.1]

3.1 INTRODUCTION

The previous review discussed several notions regarding the current status of research surrounding competitive anxiety and the symptoms associated with the phenomena. Specifically, the chapter concluded that the notion of directional perceptions; the proposal that individuals can respond in a facilitative as well as debilitative manner to the symptoms associated with competitive anxiety has increased our understanding of athletes reactions to competitive stress (cf. Woodman & Hardy, 2001). Additionally, the chapter introduced the further dimension of frequency; the amount of time performers experience the symptoms associated with competitive anxiety and critiqued the lack of research attention to this potentially important dimension. Further, the literature review concluded that perhaps one major issue sport psychologists have seemed reluctant to address is the need to examine stress responses as processes that unfold over time (cf. Cerin et al., 2000; Cerin et al., 2001; Lazarus,

[3.1] The study reported in this Chapter has been accepted for publication in the journal article: Hanton, S., Thomas, O.M., & Maynard, I. (in press). Competitive anxiety responses in the week leading up to competition: The role of intensity, direction and frequency dimensions. Psychology of Sport and Exercise.

1999). Researchers examining stress responses have previously identified that, 'The essence of stress, coping and adaptation is change...unless we focus on change we cannot learn how people come to manage stressful events and conditions' (Folkman & Lazarus, 1985; p. 150; cf., Lazarus, 1999). Therefore, the major purpose of this study was to examine possible temporal changes in the competitive anxiety dimensions of intensity, direction, frequency during an athletes preparation time for competition. The individual difference variable of skill level was assessed as a possible moderator variable over the athletes' temporal anxiety responses. National and club level athletes from a range of sporting disciplines completed the CSAI-2 (Martens et al., 1990) modified to include the dimensions of direction (Jones & Swain, 1992) and frequency (Swain & Jones, 1993) in the 7 days leading up to a competitive fixture to answer these experimental aims.

This chapter is constructed around the following themes. The review focuses on two main themes; the first emphasises the importance of assessing stress responses as temporal processes that potentially have the characteristics to change-over-time. The second section reviews the role of skill level as a moderating variable over the symptoms associated with competitive anxiety. Research examining skill level differences in the intensity of athletes responses over time was reviewed in the previous chapter, the review in this chapter focuses on the initial findings pertaining to skill level differences in the direction dimension of the response and highlights the lack of research attention to potential moderating variables in the frequency dimension.

Following the review, the aims of the study are stated and the hypotheses generated for the investigation are outlined. A detailed explanation of the methods employed throughout the study including the participant selection criteria, instrumentation used and the procedures followed precedes the results section. The final section of the chapter discusses the results of the study from a theoretical and applied

perspective leading to the identification of future research questions that emanate from the study's findings.

3.2 REVIEW OF LITERATURE

3.21 THE IMPORTANCE OF EXAMINING THE SYMPTOMS ASSOCIATED WITH COMPETITIVE ANXIETY AS PROCESSES OVER TIME

Section 2.8 in Chapter II introduced the importance of researching athletes pre-competitive affective responses through a time-to-event paradigm. Specifically, the review espouses Lazarus' and co-workers view from general psychology and the notion that stress and the responses to it are characterised by change. The recent work of Cerin and associates attempted to apply this process-oriented model into the sporting domain through the introduction of the Interactional Model of Stress as Applied to Athletic Competition (see Figure 2.4). However, a review of the literature base in competitive anxiety indicated that the use of this process-oriented approach in empirical sport psychology research is limited to the dimension of intensity with the exception of two research articles. Wiggins (1998) applied a temporal approach to the assessment of both the dimensions of intensity and direction, where as the work of Swain and Jones (1990, 1993) applied the approach to the assessment of the dimensions of intensity and frequency. Both these research programmes suffer from several limitations. First, they did not assess the collective cohort of dimensions of the competitive anxiety response; Wiggins (1998) considered only intensity and direction where as Swain and Jones (1990, 1993) considered only intensity and frequency. As noted by Woodman and Hardy (2001) researchers have identified the importance of all three anxiety dimensions, yet no research material exists that has empirically examined all three dimensions collectively in one research programme. However, perhaps the most striking limitation is that both research programmes utilised a rather limited pre-competition temporal

phase. In the case of Wiggins, a 24 hour preparation period was utilised, in the case of Swain and Jones (1993) a 48 hour preparation phase was used. This length of pre-competition time period constrains the degree of fluctuation that can occur in any dimension of competitive anxiety, and seems at odds with the majority of literature listed in Tables 2.1, 2.2, 2.3 and 2.4. There is scope to examine a pre-competition period of greater time supportive of the opinions of Lazarus and Cerin and colleagues. The approach of extending the pre-event temporal period becomes particularly relevant if one considers the practical application of such research to the applied sport psychologist. Specifically, information regarding symptom change over time has the flexibility to provide the practitioner with information about optimal times for possible interventions in the preparatory phases leading up to competition. At present, the literature examining competitive anxiety in its newly conceptualised form (i.e., incorporating the dimensions of intensity, direction and frequency) is proliferated with studies examining athletes' stress responses at times immediately before competition. This obviously provides a very limited knowledge base regarding an optimum time for the implementation of possible interventions. The use of research through time-to-event paradigms has the potential to provide a stronger rationale for the practitioner to intervene, and implement planned change during the preparatory phases leading up to competitive events.

3.22 THE ROLE OF SKILL LEVEL AS A MODERATING VARIABLE OVER THE SYMPTOMS ASSOCIATED WITH COMPETITIVE ANXIETY

Chapter II indicated skill level has been observed as an important moderating variable within both unidimensional and multidimensional anxiety. A synopsis of the findings indicated that higher skilled athletes showed lower levels of unidimensional anxiety (Highlen & Bennett, 1979; Gal-or et al., 1986). When extended into the

multidimensional framework, research indicated this pattern of results continued with higher skilled performers showing lower intensities of cognitive anxiety (Campbell & Jones, 1995; Caruso et al., 1990; Perkins & Williams, 1998) and somatic anxiety (Perkins & Williams, 1998), and higher intensities of self-confidence (Caruso et al., 1990; Hall et al., 1998; Perkins & Williams, 1994). Following the conceptualisation of the directional perceptions dimension, a small body of research exists that examined whether athletes of differing skill levels interpreted the symptoms associated with competitive anxiety as more facilitative or debilitative towards future performance.

Utilising Jones and Swain's (1992) modified version of the CSAI-2, three research articles have addressed the issue of skill level or performance accomplishments on an athletes' intensities and directional perceptions of comeptitive anxiety. The first of these studies conducted by Jones et al. (1993) did not address skill level directly, but examined the related issue of performance accomplishment. Specifically, Jones et al. (1993) examined the relationship between gymnastic beam performance and the intensity and direction dimensions of competitive anxiety. Using a median split technique, gymnasts were separated into good ($N = 24$), and poor performance ($N = 24$) groups based on performance scores from an independent judging panel. Comparisons between the two groups indicated no differences in intensities of cognitive anxiety, somatic anxiety and self-confidence. However, the good performance group reported their interpretation of cognitive anxiety as significantly more facilitative towards performance then the poor performance group ($P<.05$). Further, the good performance group also reported interpreting somatic anxiety as more facilitative towards performance than the poor performance group with the result just failing to attain statistical significance ($P=.08$). However, the results served to introduce the view that higher skilled athletes (i.e., better performers) may interpret the symptoms of competitive anxiety as more facilitative towards performance.

To advance Jones et al.'s. (1993) initial study, Jones et al. (1994) and Jones and Swain (1995) furthered the line of research with a comparison between elite and non-elite performers across both state and trait anxiety respectively. Utilising a population of elite versus non-elite swimmers[3.2], Jones et al.'s. (1994) findings for state anxiety indicated no differences for the two skill level groups for the intensity of cognitive and somatic anxiety; however, the elite swimmers showed higher intensities of self-confidence ($P<.001$). This compared to the findings for the direction dimension where elite swimmers interpreted their cognitive and somatic anxiety as significantly more facilitative towards subsequent performance than their non-elite counterparts ($P<.001$). A similar patter of results emerged from Jones and Swain's (1995) trait anxiety work with a population of elite versus non-elite cricketers[3.3]. Specifically, no differences were noted between the two groups for the intensity of cognitive and somatic trait anxiety; however, the elite group were more facilitative in their interpretation of both cognitive and somatic trait anxiety ($P<.01$). A notable difference to the state research of Jones et al. (1993) was a lack of difference in the intensity levels of trait self-confidence between the two sets of cricketers. A finding that Jones and Swain attributed to the nature of cricket as a sporting discipline and the many uncontrollable factors that effect performance that exist at all levels of cricket (e.g., the pitch, weather conditions).

There appears to be a contradiction between research examining skill level differences in anxiety when it has been conceptualised as solely an intensity based construct and when it has been conceptualised as a construct incorporating both the dimensions of intensity and directional perceptions. Specifically, no differences were

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[3.2] Elite swimmers were achievers of the 1992 Amateur Swimming Association Senior National Championship qualifying time or the 1992 Olympic Swimming Trials qualifying time. Non-elite swimmers were non-achievers of the above referenced qualifying times.

[3.3] Elite cricketers included players who were Internationals and current full time professionals in the National County Championship. Non-elite cricketers included players who were semi professional or amateur club players.

noted in the intensity levels of cognitive and somatic anxiety in the dimension based research of Jones et al. (1993, 1994) and Jones and Swain (1995) in comparison to the differences observed in the intensity alone research of Campbell and Jones (1995), Caruso et al. (1990), Highlen & Bennett, (1979), Gal-or et al. (1986) and Perkins and Williams (1998). Reason to explain these contradictions could rest with the inconsistent definition and categorisation of skill level across the studies. For example, Perkins and Williams (1998) classified high and low skill level athletes on the basis of novice versus experienced performers. However, the most experienced athlete may not always be the most skilful athlete, and the most novice the least skilful. Additionally, the criteria which Perkins and Williams (1998) used to differentiate between experienced and novice were not reported. This issue also effected the work of Campbell and Jones (1995), who indicated a skill level classification of elite versus non-elite wheelchair sport participants but failed to report the criteria for selection to each group. Finally, the unidimensional work of Durtschi and Weiss (1984) and Gal-or et al. (1986) suffered the problem of using non-validated measures of the anxiety response with both research programmes using a self-constructed measure of competitive anxiety.

It could be suggested that the more recent work of Jones et al. (1993, 1994) and Jones and Swain (1995) utilised more specific, performance-based classifications of skill level. This strength in design could go some way to explaining the variation in the findings, and provides support to the assertion that directional perceptions of the anxiety response remain an important variable in distinguishing between athletes of high and low skill levels.

Although the outlined research on directional perceptions has expanded the knowledge base on the symptoms associated with competitive anxiety there remain areas that require further attention. Specifically, with the exception of Wiggins (1998)

directional perceptions research has focused solely on measuring symptom responses at one single time point immediately before competition. If one considers the view put forward by Lazarus (1999, 2000), Cerin et al. (2000) and this thesis, such a methodological approach is limited due to the temporal nature of the stress response process. Exploration of the effects of skill level and its possible interactive effects with anxiety responses over time remains an area not covered within directional perceptions based anxiety research. Finally, the lack of research attention given to the frequency dimension of the response is somewhat surprising considering the work of Swain and Jones (1990, 1993) and the importance placed on the dimension in general psychology (Diener et al. 1991; Kardum, 1999; Thomas & Diener, 1990). There remains scope for further analysis of the frequency dimension within competitive anxiety research; having established that skill level differences exist in the other dimensions of competitive anxiety it would be interesting to examine the possible impact of skill level on the frequency of responses.

3.3 AIMS OF STUDY ONE

Synopsis of the literature throughout this, and Chapter II has identified several issues related to the way anxiety researchers have traditionally assessed athletes' responses to competitive stress. This study will attempt to acknowledge a number of these issues and draw several recommendations together within one research design. First, the study will answer the call for anxiety researchers to consider intensity, directional perceptions and frequency dimensions collectively in their investigations (Jones, 1995; Woodman & Hardy, 2001). Second, the study will extend the process-oriented view of stress into these additional dimensions by assessing their potential change as a function of time-to-competition (cf., Cerin et al., 2000, Lazarus, 1999, 2000). As an extension to previous investigations (i.e., Wiggins, 1998; Swain & Jones,

1990, 1993), a longer pre-competition preparation period will be utilised to fully allow possible fluctuations in symptomotology (i.e., cognitive and somatic) across each of the dimensions to be expressed. Finally, the temporal patterns of the dimensions will be assessed with reference to the between subjects variable of skill level. In light of the effect skill level has been shown to have over the intensity (e.g., Highlen & Bennett, 1979; Campbell & Jones, 1995; Caruso et al., 1990; Gal-or et al., 1986; Perkins & Williams, 1998), and directional perceptions (Jones et al., 1993, 1994; Jones & Swain 1995) of anxiety symptoms the inclusion of this dependent variable was deemed appropriate. This study will attempt to verify whether these differences remain in place throughout a one week pre-competition preparation phase, whether any exist for the frequency dimension, and if high or low skill level athletes react to stress differentially across the dimensions of competitive anxiety.

3.31 HYPOTHESES

Hypotheses for the study were based on previous research where available, and were separated into specific hypotheses regarding potential between subject skill level effects and potential within subject time-to-competition effects. Addressing the between subject effects of skill level first, the hypothesis for the intensity dimension was based on the more recent findings of Jones et al. (1993, 1994) and Jones and Swain (1995) and it was expected that: -

(1) No skill level effects will be noted for the constructs of cognitive and somatic anxiety but national level performers will display higher intensities of self-confidence than the club level performers throughout the pre-competition preparation period.

For the dimension of directional perceptions, the hypothesis was also based on the work of Jones et al. (1993, 1994) and Jones and Swain (1995) and indicated that: -

(2) National level performers will interpret their symptom intensities of cognitive and somatic anxiety as more facilitative towards performance than club level performers throughout the pre-competition preparation period.

To the author's knowledge, no previous research has examined skill level differences in the frequency dimension. Therefore, tentative predictions were put forward based on the skill level differences noted in previous research on the direction dimension (Jones et al., 1993, 1994; Jones and Swain, 1995). Thus, it was hypothesised that: -

(3) National level performers will experience lower frequency for the symptoms of cognitive and somatic anxiety and higher frequency for the symptoms of self-confidence than the club level performers throughout the pre-competition preparation period.

Several hypotheses were also created regarding the within subjects variable of time-to-competition. The time-to-competition effects in the intensity dimension were based on the original predictions of Martens et al.'s. (1990) MAT and it was expected that: -

(4) Cognitive anxiety and self-confidence will remain stable in the time leading up to competition where as somatic anxiety will increase at times close to competition.

For the directional perceptions dimension, the hypothesis was based on very limited research findings, namely the preliminary work of Wiggins (1998) and indicated that:-

(5) No time-to-competition effects will be noted in the direction dimensions of cognitive anxiety, somatic anxiety and self-confidence.

For the frequency dimension, the hypothesis was on the initial work of Swain and Jones (1990, 1993) and it was proposed that: -

(6) Cognitive and somatic frequency will increase as the competition moved closer but self-confidence frequency will remain stable throughout the pre-competition period.

No hypotheses were put forward for interaction effects between the independent variables. Justification for this stance rested with a lack of previous research to support hypotheses generation, and the conceptual complexity of proposing interaction effects between the skill level classifications and time-to-competition.

3.4 METHOD

3.41 PARTICIPANTS

The participant sample comprised of 82 competitive male athletes with an age range of 19 to 25 ($M = 21.0$, $SD = 3.97$). The athletes were derived from a number of invasion based team sports with the disciplines of rugby union ($N = 53$), soccer, ($N = 22$) and field hockey ($N = 7$) represented.

3.411 SKILL LEVEL CLASSIFICATION (NATIONAL VERSUS CLUB LEVEL PERFORMERS)

Based on the classification of Jones et al. (1994) the participant sample was separated by the between subjects variable of skill level. Participants were asked to rate their highest current competitive status on the distinct categories of; club performer, collegiate performer, county performer, regional performer, national U21, national emerging, national B squad and full national squad. Following this procedure, the performers were separated into two groups characterised by club performers ($N = 45$) versus national level performers ($N = 37$). To avoid any overlap between the two skill level classification groups the club performers classification group only included athletes who recorded their current competitive status as either club or collegiate. In comparison, the national performers classification group only included athletes who recorded their competitive status as national U21, national emerging, national B squad or full national squad. This resulted in the removal of athletes who recorded their current competitive status as either county or regional. All participants completed the inventory set prior to a competitive fixture in line with their current competitive status level.

3.42 INSTRUMENTATION[3.4]

3.421 THE MODIFIED CSAI-2

The CSAI-2 (Martens et al., 1990) modified to include scales for directional perceptions (Jones & Swain, 1992) and frequency (Swain & Jones, 1993) was used as the measure for assessing the symptoms associated with competitive anxiety. Participants rated their symptoms over the multidimensional constructs of cognitive anxiety, somatic anxiety and self-confidence through a total of 27 items, with 9 items

[3.4] View Appendix (3.1) for a full copy of the inventory set.

representing each construct. Symptom intensities were rated on a scale ranging from 1 ('not at all') to 4 ('very much so') leading to intensity scores ranging from 9 to 36 for each anxiety and confidence construct. Internal consistency scores (Cronbach alpha coefficients) for the intensity scale have been reported to range from .79 to .90 demonstrating acceptable consistency (Martens et al., 1990; Jones & Swain, 1992).

Participants also rated the degree to which symptom intensities were regarded as facilitative (positive) or debilitative (negative) towards subsequent performance on the direction scale developed by Jones and Swain (1992). Specifically, the direction continuum for each item ranged from –3 ('very debilitative': negative) to +3 ('very facilitative': positive) with 0 indicating an 'unimportant' interpretation. Therefore, directional perceptions ranged from –27 to +27 for each of the constructs of anxiety and confidence[3.5]. Cronbach alpha coefficients have demonstrated internal consistency for the direction scale yielding values from .80 to .89 for cognitive anxiety, and .72 to .84 for somatic anxiety (Hanton et al., 2000; Jones & Hanton, 1996). Finally, frequency of symptoms associated with competitive anxiety was assessed on the scale developed by Swain and Jones (1993). This scale assesses the degree to which symptom related thoughts or experiences occurred on a scale ranging from 1 ('never') to 7 ('all the time') for each item of the CSAI-2. Therefore, symptom frequencies ranged from 9 to 63 across each construct of anxiety and confidence. Although the frequency scale has been subjected to primary investigation, no internal reliability scores are currently available for the scale.

3.43 PROCEDURES

The performers were approached prior to a regular training session following an initial discussion with coaches and/or club representatives. At these sessions potential

[3.5] Please note, previous directional perceptions studies have removed the scale assessing self-confidence direction. Inclusion in this study is justified in the Discussion section please refer to Section 3.61.

participants were advised of the structure and timetabling of the data collection and were informed that the researcher was interested in understanding more about their preparation based pre-competition mental routines. Following this, volunteers were identified who agreed to participate in the study and informed consent was obtained[3.6]. These individuals were introduced to the modified CSAI-2 and familiarised with the response format of the inventory.

Participants were instructed to complete the inventory at five temporal stages, 1 week, 2 days, 1 day, 2 hours and 30 minutes prior to competition. These stages reflected the time scales used in Martens et al. (1990) original temporal research and were synonymous with several of the intensity only research designs outlined in Tables 2.1, 2.2, 2.3 and 2.4. Participants were referred to the standardized instructional set of Martens et al. (1990) highlighting the need for honesty, and to respond to the thoughts and feelings they were experiencing 'right now'.

3.5 RESULTS

3.51 DATA ANALYSIS

The data analysis was separated into four stages. Firstly, data were pre-screened and statistical assumptions were tested[3.7]. The second stage emphasised the importance of measuring the different dimensions of anxiety and self-confidence through a correlational analysis between the intensity and direction, and intensity and frequency dimensions at each pre-competition stage. Thirdly, pre-competition means were presented, followed by calculation of temporal changes of symptoms through a series of multivariate analyse of variances (MANOVA) testing for interaction and main effects of

[3.6] Please note, the procedures conducted in this study were approved in the 'Pre-Approved' procedures section of the Sheffield Hallam University School of Sport and Leisure Management Ethics Committee guidelines. Therefore, ethical clearance for the study was fulfilled.

[3.7] A detailed outline of the assumption testing and structure of the analyse are located in Appendix (3.2).

experimental group (skill level) by time-to-competition with repeated measures on the second factor for each inventory construct and dimension.

3.52 DATA PRE-SCREENING AND ASSUMPTION TESTING

Prior to initiating analysis procedures, the data were tested for missing cases, distributions and assumptions of univariate and multivariate analyses (Field, 2000; Tabachnick & Fidell, 1996). A detailed outline of these pre-screening procedures including the relevant statistical outputs is located in Appendix 3.2. However, to summarise the analysis, no missing cases and no univariate or multivariate outlying cases were identified within each dependent variable (Mahalanobis distance test). Following the guidelines of Field (2000) and Tabachnick and Fidell (1996), normality assumptions were tested at the univariate and multivariate level along with assumptions of linearity, multicolinearity and singularity; all were deemed satisfactory. The assumption of equality of co-variance matrices although satisfactory at the univariate level (F_{max} ratios) was violated in some cases at the multivariate level (Box's test). Therefore, Pillia's trace statistic was chosen as the appropriate multivariate test statistic due to its robustness over test violations (Field , 2000; Tabachnick & Fidell, 1996).

3.53 CORRELATIONAL ANALYSIS, THE RELATIVE INDEPENDENCE OF ANXIETY INTENSITY, DIRECTION AND FREQUENCY

Due to the limited knowledge regarding the inter-relationships between the constructs of competitive anxiety and confidence as competition nears, correlation coefficients between intensity subscales were calculated. Table (3.1) displays the coefficients, which were generally lower than those reported by Gould et al. (1984).

Table (3.1) Shared Variances Between the CSAI-2 Intensity Constructs at all Pre-competition Times

	Correlations (% common variance)		
Time Period	CA – SA	CA -SC	SA - SC
7 days	.22 (5%)	-.30 (9%)	-.34 (12%)
2 days	.29 (9%)	-.27 (8%)	-.40 (16%)
1 day	.32 (10%)	-.21 (4%)	-.41 (17%)
2 hours	.22 (5%)	-.34 (12%)	-.38 (14%)
30 Minutes	.38 (14%)	-.27 (7%)	-.35 (12%)

Legend: -

CA = Cognitive anxiety; SA = Somatic anxiety; SC = Self-confidence

However, for times close to competition (i.e., the 30 minute stage) the values reported were relatively consistent with those previously noted in the literature (e.g., Hanton et al., 2000; Martens et al., 1990).

To outline the relative independence of the dimensions of intensity, direction and frequency, correlations between these dimensions were also produced. The shared variance proportions between the dimensions of intensity and directional perceptions were consistent with those previously cited by Hanton et al., (2000) and Jones et al. (1993) for the scales of cognitive anxiety and somatic anxiety (Table 3.2). The shared variances proportions throughout the five pre-competition stages were 9% at best for both cognitive and somatic anxiety. Interestingly, the shared variance proportions for self-confidence intensity and direction were lower than previously reported in the literature. The two dimensions in this study shared at best 24% common variance throughout the pre-competition period, indicating a degree of independence in the two scales.

No previous sport psychology research has assessed the relative independence of the intensity and frequency dimensions of competitive anxiety. The analysis in this study indicated the two dimensions should be considered as separate constituents of the competitive anxiety response. Specifically, cognitive anxiety intensity and frequency shared at best 15% common variance, somatic anxiety intensity and frequency shared at best 21% and self-confidence intensity and frequency shared at best 24% throughout the pre-competition period (Table 3.3).

Table (3.2) Inter-relationships Between the Dimensions of Intensity and Directional Perceptions

	Correlations (% common variance)		
Time Period	CA	SA	SC
7 days	-.281 (8%)	-.212 (5%)	.494 (24%)
2 days	-.305 (9%)	-.208 (4%)	.404 (16%)
1 day	-.297 (9%)	-.275 (8%)	.492 (24%)
2 hours	-.261 (7%)	-.303 (9%)	.459 (21%)
30 minutes	-.243 (6%)	-.211 (5%)	.483 (23%)

Table (3.3) Inter-relationships Between the Dimensions of Intensity and Frequency

	Correlations (% common variance)		
Time Period	CA	SA	SC
7 days	.364 (13%)	.394 (16%)	.491 (24%)
2 days	.391 (15%)	.303 (9%)	.398 (16%)
1 day	.352 (12%)	.415 (17%)	.471 (22%)
2 hours	.289 (8%)	.462 (21%)	.494 (24%)
30 minutes	.393 (15%)	.429 (18%)	.453 (21%)

Legend: -

CA = Cognitive anxiety; SA = Somatic anxiety; SC = Self-confidence

3.54 TIME-TO-EVENT CHANGES IN THE DIMENSIONS OF INTENSITY, DIRECTION AND FREQUENCY AS A FUNCTION OF SKILL LEVEL

A series of 2 (skill level grouping) x 5 (time-to-competition) MANOVA's with repeated measures on the second factor tested the data set for interaction and main effects of skill level and time. Analyses were separated across the anxiety dimensions (intensity; directional perceptions and frequency) with skill level acting as the independent variable and cognitive anxiety, somatic anxiety and self-confidence acting as the dependent variables over all time periods within each analysis[3.8]. Pillia's Trace was chosen as the most appropriate multivariate test statistic due to the assumption of equality of covariance matrices being violated in some cases at the multivariate level (see Appendix 3.2). Pillia's Trace has been shown to be robust over test violations and was therefore deemed the most appropriate criterion statistic (Field, 2000; Tabachnick & Fidell, 1996).

No interaction effects were noted ($P > .05$) suggesting that any change-over-time patterns were consistent (or parallel) across the two skill level classifications. This resulted in data being collapsed over skill level classification for the change-over-time analysis. Combined means and standard deviations are displayed in Table (3.4). However, main effects were observed for the experimental grouping of skill classification and time-to-competition in several dimensions of anxiety and self-confidence responses. The identification of such main effects was followed with one way ANOVA testing for either between subject effects of skill level classification, or within subject repeated measures effects of time-to-competition. The ANOVA's were followed by *t* tests with bonferroni correction for pairwise comparisons where appropriate (Field, 2000; Tabachnick & Fidell, 1996).

[3.8] A detailed outline of the structure and assumption testing of the analyse is located in Appendix (3.2)

Table (3.4) Anxiety and Confidence Means and Standard Deviations Over all Time Periods Collapsed Across all Skill Levels

Variable	7 Days (*M*; *SD*)	2 Days (*M*; *SD*)	1 Day (*M*; *SD*)	1 Hour (*M*; *SD*)	30 mins (*M*; *SD*)
CA-I	22.48 (6.94)	22.59 (6.83)	24.06 (5.98)	22.98 (6.24)	25.83 (5.74)
SA-I	19.40 (6.15)	18.82 (6.47)	20.92 (6.29)	22.11 (7.45)	26.05 (5.49)
SC-I	25.57 (5.83)	24.93 (7.27)	24.11 (5.89)	24.85 (6.09)	22.85 (5.56)
CA-D	5.10 (13.12)	7.16 (13.94)	8.82 (11.38)	8.04 (12.72)	7.63 (12.07)
SA-D	2.42 (13.41)	6.61 (12.40)	9.32 (9.00)	7.85 (11.66)	7.83 (12.19)
SC-D	5.89 (14.72)	9.54 (11.93)	8.45 (11.10)	7.66 (13.24)	8.37 (12.15)
CA-F	25.63 (11.50)	35.22 (12.47)	35.55 (12.42)	40.10 (13.28)	45.15 (12.18)
SA-F	25.23 (10.95)	33.60 (12.70)	33.98 (13.09)	34.73 (14.38)	39.77 (13.79)
SC-F	29.56 (13.70)	40.20 (11.21)	39.72 (12.07)	40.32 (12.29)	39.00 (11.86)

Legend: -

CA = Cognitive anxiety; SA = Somatic anxiety; SC = Self-confidence; I = Intensity; D = Directional perceptions; F = Frequency

3.541 BETWEEN SUBJECT SKILL LEVEL EFFECTS

Table 3.5 highlights the significant multivariate effects for skill level across the competitive anxiety dimensions of intensity, direction and frequency. Examination of Table 3.5 indicates that skill level main effects were not realised in the dimensions of intensity and frequency, but were observed in the dimension of directional perceptions. This suggested national and club level performers did not differ in the intensity and frequency of pre-competitive cognitive anxiety, somatic anxiety and self-confidence symptoms they experienced as competition approached. However, the two skill classification groups did differ in their interpretation (i.e., direction scores) of the pre-competitive anxiety symptoms they experienced during the preparation phases for competition.

The between subject ANOVA's that were conducted to account for this significant multivariate effect indicated skill level differences were evident in the interpretation of cognitive anxiety symptoms and the interpretation of somatic anxiety symptoms (Table 3.6). In comparison, no skill level differences emerged in the ANOVA that tested for interpretation of self-confidence symptoms (Table 3.6). Follow-up Bonferroni corrected *t* tests suggested that the national level performers were more facilitative than the club level athletes in their interpretation of the symptoms associated with cognitive anxiety ($M = 10.20$ *vs* 5.01 respectively) and somatic anxiety ($M = 9.27$ *vs* 4.78) throughout the overall pre-competition time period (Figure 3.1 and 3.2 respectively).

Table (3.5) Multivariate Significant Main Effects

Variable	Effect	Hdf; Edf	Pillai's trace	*F*	*p*
Intensity	Skill Level	3, 78	.067	1.86	.143
Direction	Skill Level	3, 78	.193	6.22	<.001
Frequency	Skill Level	3, 78	.021	.57	.638
Intensity	Time-to-competition	12, 69	.746	16.88	<.001
Direction	Time-to-competition	12, 69	.209	1.52	.138
Frequency	Time-to-competition	12, 69	.774	19.66	<.001

Legend:-

Hdf = Hypothesis degrees of freedom

Edf = Error degrees of freedom

Table (3.6) Between Subject ANOVA Summaries for Skill Level Effects

Variable	Construct	df	*F*	*p*
Direction	Cognitive	1, 80	13.75	<0.001
	Somatic	1, 80	10.25	0.002
	Self-confidence	1, 80	0.02	0.886

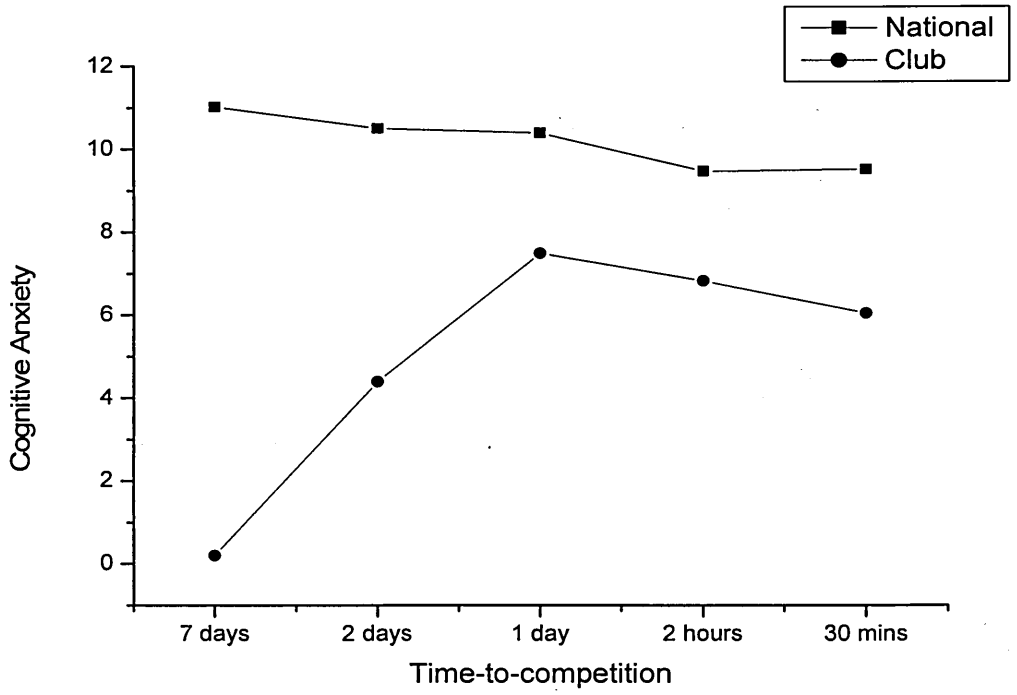

Figure (3.1) Cognitive Anxiety Direction Skill Level Main Effects

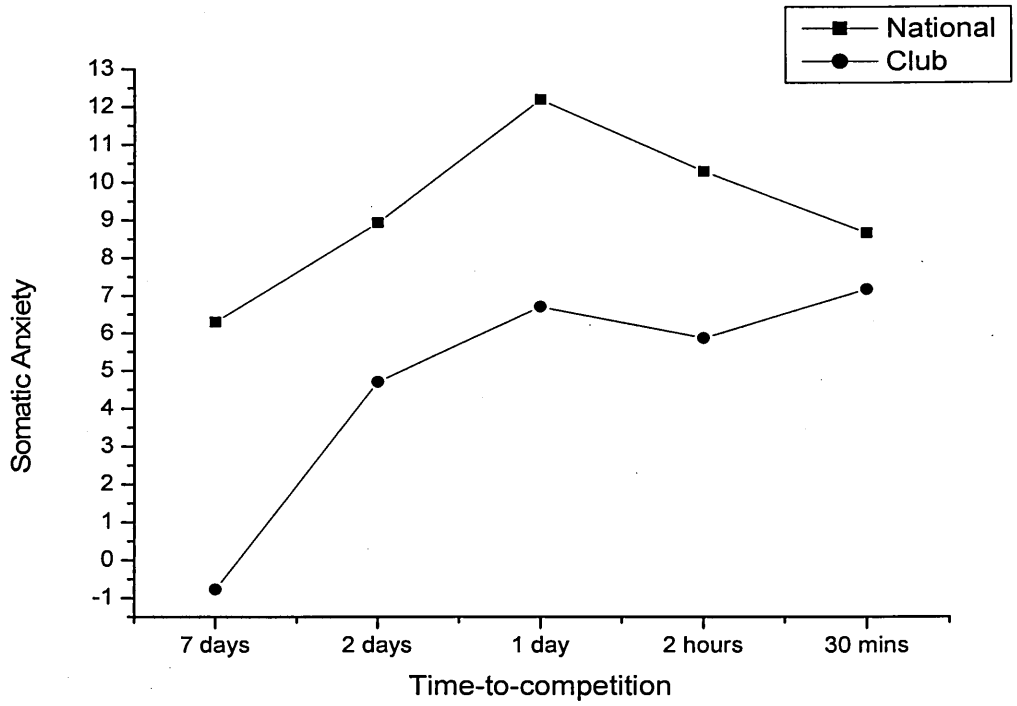

Figure (3.2) Somatic Anxiety Direction Skill Level Main Effects

3.542 WITHIN SUBJECT TIME-TO-COMPETITION EFFECTS

Table 3.5 indicates that multivariate time-to-competition main effects were observed in the dimensions of intensity and frequency but were not displayed in the dimension of directional perceptions. Follow-up within subject repeated measures ANOVA indicated change-over-time differences were observed across the symptoms of cognitive anxiety, somatic anxiety and self-confidence within these two dimensions (Table 3.7). For intensity of responses, Bonferroni corrected *t* tests indicated both cognitive anxiety and somatic anxiety remained stable through each of the pre-competition preparation stages with the exception of an increase between 2 hours and 30 minutes before the event (Figure 3.3). The findings for self-confidence intensity showed a similar stable pattern throughout the initial pre-competition preparation stages however, self-confidence levels decreased between the final two time periods before the event (Figure 3.3). In comparison, time-to-competition changes in the frequency dimension were more variable than those displayed for the intensity dimension. Bonferroni corrected *t* tests indicated frequencies of cognitive anxiety symptoms increased between 7 days to 2 days before competition and highlighted further increases between the 1 day and 2 hour, and 2 hour and 30 minute pre-competition preparation stages (Figure 3.4). The follow-up testing for frequencies of somatic anxiety symptoms indicated symptoms increased between 7 days to 2 days pre-competition and from 2 hours to 30 minutes before the event (Figure 3.4). Finally, follow-up testing for the frequency of self-confidence symptoms suggested responses increased between 7 days and 2 days before competition. Following this initial rise, self-confidence frequency maintained a stable profile over the remainder of the pre-event temporal period (Figure 3.4).

Table (3.7) Repeated Measures ANOVA Summaries for Change-over-time Effects

Variable	Construct	df	*F*	*p*
Intensity	Cognitive	3, 226[a]	5.95	<.001
	Somatic	3, 250[a]	23.32	<0.001
	Self-confidence	3, 264[a]	3.84	.008
Frequency	Cognitive	3, 264[a]	45.59	<.001
	Somatic	3, 199[a]	22.45	<.001
	Self-confidence	2,188[a]	20.14	<.001

Legend:-

[a] = The sphericity assumption for the within-subjects design was violated therefore, the Green-House Geisser correction was applied to adjust the degrees of freedom for subsequent *F* statistic calculation (Field, 2000; Tabachnick & Fidell, 1996).

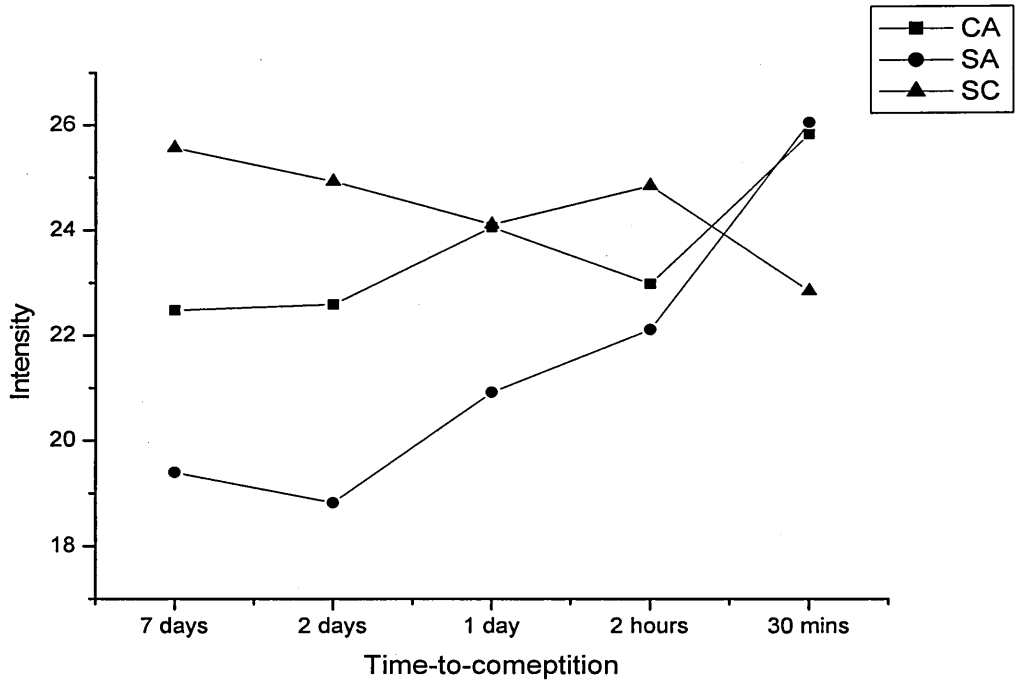

Figure (3.3) Time-to-competition Effects for Intensity of Responses

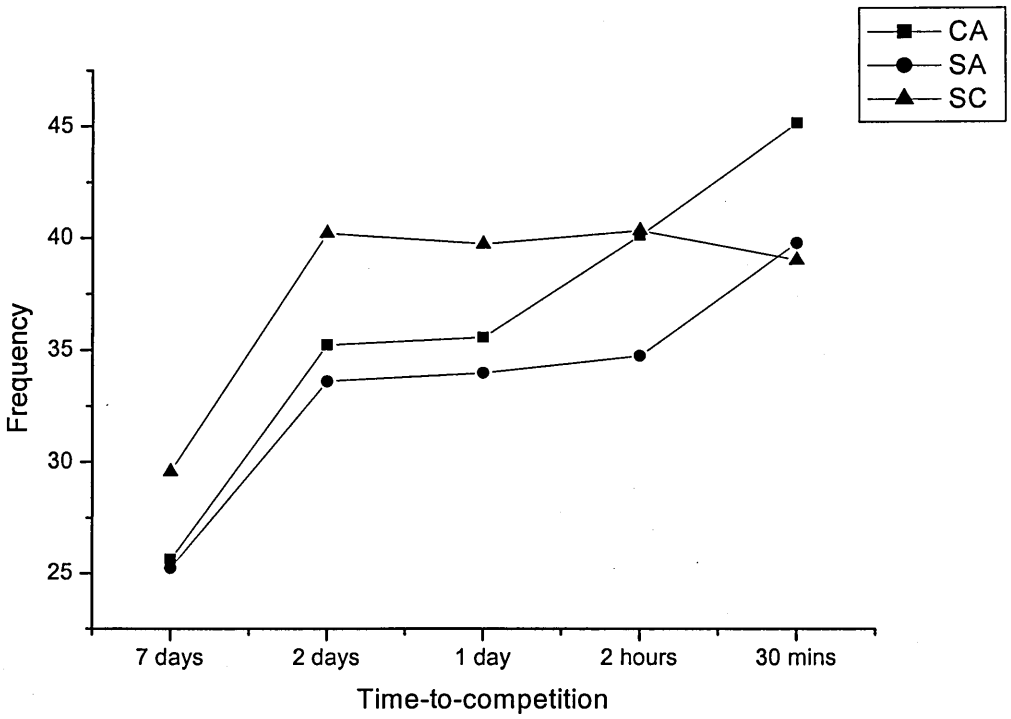

Figure (3.4) Time-to-competition Effects for Frequency of Responses

3.6 DISCUSSION

3.61 THE IMPORTANCE OF EXAMINING THE SEPARATE DIMENSIONS OF THE COMPETITIVE ANXIETY RESPONSE

Previous research has recognised the independence between the intensity and direction dimensions of competitive anxiety symptoms and has therefore advocated the use of such separate dimensions when assessing athletes' responses to competitive stress (e.g., Hanton et al., 2000; Jones & Hanton, 2001). The shared variance proportions noted between the intensity and directional perceptions dimensions, and between the intensity and frequency dimensions from this study supports this point. Specifically, the intensity and direction dimensions of cognitive and somatic anxiety shared at best 9% common variance through out the five pre-competition time phases. However, the time-to-event basis of this research programme suggests a degree of stability in the relative independence of the dimensions over time. The methodological approach of Hanton et al. (2000) and Jones and Hanton (2001) and the use of one sampling point immediately before the start of competition restricted generalisability about the independence of the dimensions to time periods close to competition. The results here indicate the dimensions remain relatively independent throughout the week preceding competition adding support to the stability of their independence. Interestingly, the shared variance proportions observed between the dimensions of self-confidence intensity and direction were lower than those previously reported in the literature. Previous directional perceptions research has removed the self-confidence direction scale on the basis that it essentially measures the same state as the intensity scale (e.g., Hanton et al., 2000; Jones et al., 1993; Jones & Hanton, 2001). However, this conclusion was based on the attainment of a coefficient of 0.80 (64% common variance) between the two dimensions at one time period immediately before competition in Jones et al.'s (1993) original research. The levels of shared variance in this study remain relatively consistent

throughout the week preceding competition averaging around the low 20% mark. This suggests the intensity and directional perceptions of self-confidence are worthy of separate measurement and analysis.

The limited research activity examining the frequency dimension of competitive anxiety has failed to report a statistical argument to support the separate measurement and therefore consideration of the dimension. However, the coefficient and shared variance proportions calculated in this study strengthen the argument that the frequency dimension should be integrated into research related to athlete's emotional responses to competitive stress (Cerin et al. 2000; Woodman & Hardy, 2001). Specifically, the shared variance proportions for the intensity and frequency dimensions of cognitive and somatic anxiety represent at best 24% throughout the week preceding competition. These findings concur with emotionalists' beliefs that the intensity and frequency of responses are related but should be considered as, and therefore measured as, separate dimensions that independently contribute to the individual's affective experiences (Diener et al., 1991; Kardum, 1999). Further, if one examines the dissociative pattern that intensity and frequency appear to follow through the pre-competition period, and the greater sensitivity or fluctuation within the frequency of responses, it could be argued that the importance of assessing these two dimensions is intensified within process-oriented time-to-event research.

3.62 SKILL LEVEL DIFFERENCES IN ANXIETY AND CONFIDENCE SYMPTOMS OVER THE PRE-COMPETITION PERIOD

The findings from this study are in partial support of hypothesis (1). Specifically, no main effects were noted for skill level within the intensity dimension MANOVA for any construct of competitive anxiety. This suggests that national and club level performers did not report differing levels of cognitive anxiety, somatic

anxiety and self-confidence in the week leading up to competition. These findings support hypothesis (1) for the constructs of cognitive and somatic anxiety, but contradict it for the construct of self-confidence. Previous state anxiety research has suggested that elite and non-elite athletes do not differ on their intensities of cognitive and somatic anxiety at times immediately before performance (Jones et al., 1993, 1994). Further, the temporal basis of this study extends these findings across a wider pre-competition period in comparison to the single time point method (i.e., immediately before competition) adopted by Jones and co-workers. Taken in conjunction with Jones and Swain's (1995) similar findings for trait cognitive and somatic anxiety, it appears that these differences remain relatively stable over time across the two skill level classifications. However, the realisation of no skill level differences for the construct of self-confidence intensity contradicted part of hypothesis (1). Further, the finding contradicts the state level research of Jones et al. (1994) who noted elite athletes experienced higher levels of state self-confidence at times close to competition. However, such differences were not noted in the trait anxiety research of Jones and Swain (1995) whose results were synonymous with those reported here. Possible explanations for the difference in the findings could relate to the sample populations used. Jones and Swain (1995) and the study reported here utilised team-based sports participants in comparison to the individual-based sport of swimming utilised in Jones et al.'s. (1994) research. Further, the lack of interaction effects noted in this study for skill level effects over time resulted in the main effect analysis for time-to-competition combining sample means over the entire pre-competition preparation. This process has the potential to lead to a more stable type of group response (i.e., akin to trait symptoms) being displayed than the use of a single state sampling point immediately before the onset of competition, the type of methodology employed by Jones et al. (1994).

With regard to hypothesis 2, the results support the major prediction that national level athletes would interpret their intensity levels of cognitive and somatic as more facilitative towards future performance than the club level athletes throughout the week preceding competition. These findings support the skill level differences noted in previous directional perceptions state (Jones et al., 1993, 1994) and trait (Jones & Swain, 1995) research, adding weight to the notion that directional interpretation remains an important distinguishing variable of the competitive anxiety response. The time-to-event paradigm employed in this study extends the single time point method employed in the state anxiety research of Jones et al. (1993, 1994) leading to the suggestion that skill level differences in the direction dimension are relatively consistent over time, findings that support Jones and Swain's (1995) trait anxiety work. However, the tentative hypothesis forwarded for the dimension of frequency (hypothesis 3) was not supported through this research. Specifically, no skill level differences emerged in the amount of time athletes spent attending to the symptoms of cognitive anxiety, somatic anxiety and self confidence as the event moved closer. It should be emphasised that no previous research has attempted to examine the between subjects effects of skill level on the frequency dimension due to the lack of empirical work taking the dimension into consideration (cf. Cerin et al., 2000; Woodman & Hardy, 2001). However, it appears that skill level may not be an appropriate moderator variable within the frequency with which performers have cognitions or experience the symptoms of cognitive and somatic anxiety and self-confidence.

To summarise, it appears that the moderator variable of skill level was only capable of distinguishing between athletes directional perceptions of competitive anxiety throughout the week leading up to competition. The lack of differences between national and club level performers for the dimensions of intensity and frequency suggests the moderator variable may not be sensitive enough to distinguish between

athletes who experience differing intensities and frequencies of competitive anxiety symptoms as competition draws closer.

3.63 TIME-TO-COMPETITION CHANGES IN ANXIETY AND CONFIDENCE SYMPTOMS OVER THE PRE-COMPETITION PERIOD

The time-to-competition findings emanating from the study emphasised the view that researchers need to measure, and consider the different dimensions of competitive anxiety as responses that have the potential to change-over-time (cf. Cerin et al., 2000; Lazarus, 1999, 2000; Woodman & Hardy, 2001). The findings for the intensity dimension indicated cognitive anxiety, somatic anxiety and self-confidence all vary as a function of time-to-competition. The patterns displayed for both cognitive and somatic anxiety intensity indicated an increase in symptom levels through the two stages on the day of competition; conversely, self-confidence intensities decreased between these two stages. In the case of somatic anxiety intensity these results were congruent with hypothesis 3, Martens et al.'s. (1990) original MAT predictions and associated research within the area (e.g., Campbell & Jones, 1997; Gould et al., 1984; Jones et al., 1991; Slaughter et al., 1994; Swain & Jones, 1990, 1991, 1992, 1993; Wiggins, 1998). However, the findings contradicted hypothesis (3) for the constructs of cognitive anxiety and self-confidence intensity. Specifically, in line with MAT, it was hypothesised that cognitive anxiety and self-confidence intensities would remain stable as the competitive event approached. However, cognitive anxiety levels were found to increase between 2 hours and 30 minutes pre-competition with self-confidence levels decreasing between such pre-event times. Although not supportive of the hypothesis, previous intensity based temporal research has noted these patterns in cognitive anxiety and self-confidence intensities at times close to the event (e.g., Campbell & Jones, 1997; Davids & Gill, 1995; Swain & Jones, 1990, 1992, 1993). Further, the fluctuations

in these constructs serve to enhance the process-oriented view of the stress process espoused by Cerin et al. (2000) and Lazarus (1999, 2000). This point becomes increasingly pertinent considering the time-to-event changes that were revealed in the frequency dimension.

It appears that the frequency dimensions of both cognitive and somatic anxiety are more sensitive to changes over time than the intensity of responses. Frequency of cognitive anxiety increased through each successive stage of the pre-competition period except between the 2 day and 1 day pre-event stage. Results that support the studies hypothesis (6) and the preliminary work of Swain and Jones (1990, 1993). Additionally, the inclusion of the frequency dimension furthers the notion that the intensity and frequency dimensions follow a dissociative pattern as competition approaches. It is not possible to infer cause and effect from this study, but the pattern of results across the two dimensions of intensity and frequency suggests that changes in cognitive symptom frequencies are more sensitive, and occur earlier in the pre-competition period than changes in the intensity dimension. Possible exploration of the relationships between these dimensions could reveal that increases in frequency act as a precursor to associated increases in symptom intensities. This view links to beliefs held by affect emotionalists who suggest frequency information is easier for individuals to encode, and therefore more accurate to record than intensity based information, and that individuals' estimates of intensities of emotional responses can be biased by the actual frequency of the same emotional response (Diener et al., 1991; Kardum, 1999). Further, the findings for somatic anxiety also suggest the frequency dimension is more sensitive to temporal changes than the intensity dimension. This was emphasised through additional increase in the frequency dimension between the pre-competition stage of 7 and 2 days, a change not noted in the dimension of intensity. However, the time-to-competition effects noted in somatic anxiety frequency in this study did not reflect the

findings of Swain and Jones (1990, 1993). Specifically, both studies reported a progressive increase in frequency scores from within 2 days of competition, where as in the mid-point stages in this study (i.e., 2 days to 1 day; 1 day to 2 hours) no change-over-time effects were observed. Explanation for these results could rest with Swain and Jones' (1990, 1993) proposal that the changes in the somatic anxiety frequency dimension appear to be synonymous with those observed in the intensity dimension. The consensus between the two dimensions during these mid-point phases in this study through their lack of change-over-time serves to enhance this point. Additionally, it was noteworthy that self-confidence frequencies increased between the 7 and 2 day pre-competition phases within this study, an increase that resulted in only partial acceptance of hypothesis (6). Unfortunately, comparisons to Swain and Jones' (1990, 1993) original research cannot be made due to the limited 48 hour pre-competition time phase they adopted. However, it should be noted that following this initial increase the frequency with which athletes thought about self-confidence remained stable in the time leading up to competition, results that support the studies hypothesis and the preliminary findings of Swain and Jones (1990, 1993).

As hypothesised (hypothesis 5) no time-to-competition effects were observed in the dimension of directional perceptions for the symptoms of cognitive and somatic anxiety and self-confidence. Therefore, it appears that once athletes have appraised their symptom intensity levels as either facilitative or debilitative towards performance this interpretation does not change as the athlete prepares for competition. These results support the preliminary empirical work of Wiggins (1998) and extend them to a longer (i.e., 1 week) pre-competition period. However, an interesting observation from both research programmes is the utilisation of athletes that interpreted both the symptoms of cognitive and somatic anxiety as facilitative towards their subsequent performance. Examination of Table 3.4 indicates that the average responses for directional

perceptions of cognitive anxiety ranged from between 5.10 to 8.82 with directional perceptions of somatic anxiety ranging between 2.42 to 9.32 through the pre-competition period. These results are comparable with Wiggins (1998) who noted perceptions of cognitive anxiety between 4.36 to 4.69 and perception of somatic anxiety between 7.04 to 8.07 during a pre-competition period of 48 hours. The use of athletes who view the symptoms associated with competitive anxiety as a debilitative phenomenon could evoke patterns different to those reported here and by Wiggins (1998). In fact, when one reviews the body of research assessing directional perceptions in competitive anxiety, very few research programmes have utilised athletes with debilitative perceptions. Examination of studies dealing with anxiety responses immediately before competition indicates a predominance of studies with mean values indicating facilitative interpretations of both cognitive and somatic anxiety (Jones & Hanton, 1996; Jones et al., 1993, 1994; Jones & Swain, 1992, 1995; Swain & Jones, 1996). Only two studies were found with overall debilitative means, the work of Hanton et al. (2000) and Perry and Williams (1996). This suggests that athletes with debilitative interpretations have received limited research attention as a population group, a point emphasised by Cerin et al. (2000, 2001) and Woodman and Hardy (2001). An important question for future work relates to examining possible change over time patterns in competitive anxiety responses in athletes who view symptoms as debilitative towards future performance.

3.7 SUMMARY

In summary, these findings highlight the independence of intensity and directional perceptions dimensions and intensity and frequency dimensions of competitive anxiety, emphasising the use of a dimensional approach to the measurement and study of affective responses (cf. Diener et al 1991; Jones, 1995; Woodman &

Hardy, 2001). Further, the realisation of time-to-event fluctuations in the intensity and frequency dimensions of competitive anxiety supports the view that stress responses should be considered as process based reactions that change over time as athletes prepares for competition (cf. Cerin et al., 2000; Lazarus, 1999; 2000). This realisation is particularly relevant to the frequency dimension. To date this dimension has received very limited research attention, the findings here and the preliminary work of Swain and Jones (1990, 1993) indicate the dimension to be particularly important in research examining stress responses as processes over time.

However, although the use of the between subjects variable of skill level has emphasised the differences that exist in the way athletes interpret anxiety symptoms, the moderator appears less sensitive for distinguishing between responses of intensity and frequency. Possibly the use of anxiety perceptions itself (i.e., whether the athlete interprets symptoms as positive or negative) as a moderator variable may help identify differences across the cohort of anxiety dimensions, especially when one considers the small amount of research utilising athletes who interpret anxiety as a negative phenomena.

Finally, advice for sport psychologists emanating from this study suggests interventions to control or restructure anxiety based symptoms should be constructed around a time-to-event theme. If symptom responses are shown to vary as a function of time-to-competition the delivery of intervention programmes should reflect these changes. At present the literature base is proliferated with studies examining athlete's responses to competitive stress at times immediately before competition with the design of intervention programmes based on these findings (e.g., Hanton & Jones, 1999b, Maynard et al., 1995a, b; Maynard et al., 1998). This obviously provides a very limited knowledge base regarding the optimum time for the implementation of possible interventions. The use of further time-to-event research as used in this study, has the

potential to provide a stronger rationale for the practitioner to intervene and implement planned behaviour change during the time leading up to competitive events.

CHAPTER IV

STUDY TWO

TIME-TO-EVENT CHANGES IN THE DIMENSIONS OF COMPETITIVE ANXIETY AS A FUNCTION OF DIRECTIONAL PERCEPTIONS (FACILITATIVE, DEBILITATIVE AND MIXED)[4.1]

4.1 INTRODUCTION

Study one examined the time-to-competition changes in the competitive anxiety dimensions of intensity, directional perceptions and frequency as a function of skill level in a sample of team sportsmen. The results suggested no skill level by time-to-competition interactions indicating that the symptom changes in national and club level performers observed similar patterns over time. However, main effects emerged for skill level with national athletes being more facilitative in their interpretation of cognitive and somatic anxiety throughout the time leading up to competition. Main effects were also observed for time-to-competition with competitive anxiety intensities and frequencies varying during the preparation time for competition. Important issues arising from the study indicated the need for further time-to-competition stress research to supplement the findings noted in the first study for the intensity and frequency dimensions (Cerin et al., 2000; Lazarus, 1999, 2000). Further, an important question

[4.1] The study reported in this Chapter has been accepted for publication in the journal article: Thomas, O.M., Maynard, I., & Hanton, S. (in press). Temporal aspects of competitive anxiety and self-confidence as a function of anxiety perceptions. The Sport Psychologist.

emanating from the study related to the lack of research attention devoted to athletes who view anxiety symptoms as debilitative towards future performance and the use of directional perceptions as a moderator over time-to-competition symptom responses.

The main aim of this study was to further the process orientated line of research within the dimensions of competitive anxiety responses into a group of performers who interpret their symptoms of cognitive anxiety and somatic anxiety as either facilitative, debilitative or mixed towards subsequent performance. In response to these experimental aims, high level competitive male and female athletes separated by their anxiety interpretations (facilitative, debilitative and mixed) completed the CSAI-2 at four pre-competition stages.

This chapter reports the studies findings and is organised as follows. The review of literature outlines the small amount of research in sport psychology which has utilised athletes who interpret their symptom responses of competitive anxiety as a debilitative phenomenon. Following on, the review leans on academic test anxiety literature to support the studies rationale. The review is followed with a statement of the study's aims where the general hypotheses formulated for the study are noted. The method section details the participant sample, their selection criteria, the instrumentation used and the procedures adhered to. An outline to the data analyses used precedes the results section where several statistical comparisons are displayed. The discussion section concludes the chapter in which the findings of the study are considered from a theoretical and applied perspective.

4.2 REVIEW OF LITERATURE

4.21 RESEARCH WITH PARTICIPANTS INTERPRETING THEIR PRE-COMPETITIVE ANXIETY SYMPTOMS AS DEBILTATIVE

The body of research surrounding directional perceptions has grown over the last ten years with studies predominantly measuring athletes state anxiety responses at times immediately before competition. Research activity has focused primarily on examining the effects of individual difference variables, both situational and personal, as moderators over the interpretation of competitive anxiety. Variables such as skill level (Jones et al., 1994; Jones & Swain, 1995), sporting performance (Jones et al., 1993; Swain & Jones, 1996), competitiveness (Jones & Swain, 1992), goal attainment expectancy (Jones & Hanton, 1996), antecedents of competitive anxiety (Hanton & Jones, 1997), sex (Perry & Williams, 1998), the acquisition and restructuring of cognitive interpretations (Hanton & Jones, 1999a, b), psychological skill usage (Fletcher & Hanton, 2001), the nature of the competitive sport (Hanton et al., 2000), coping strategy use (Ntoumanis & Biddle, 2000), hardiness (Hanton et al., 2003) have all been utilised to support the distinction of the directional perceptions dimension.

However, examination of the mean response values for the direction scale of the CSAI-2 indicates that very few of these studies incorporated athletes who viewed their anxiety responses as debilitative towards performance (i.e., scored a negative value on the directional perceptions scale). Although the above research programmes indicated that certain population groups regarded their pre-performance anxiety as more facilitative towards performance, the counterpart group still perceived their pre-performance anxiety as positive towards future performance. For example, in the skill level research of Jones et al. (1994) although the elite performers were more facilitative in their interpretation of pre-performance anxiety than the non-elite performers, both

groups interpreted the symptoms of competitive anxiety as facilitative (positive)[4.2]. The same can be found in the competitive orientation work of Swain and Jones (1992), although highly competitive basketball players were more facilitative in their interpretation of pre-performance competitive anxiety than the low competitive players both groups interpreted their symptoms as positive towards performance[4.3]. This highlights a lack of directional perceptions research that has incorporated athletes who perceive their pre-performance symptoms as debilitative (negative) towards future performance. However, there are exceptions to this trend. More recently authors have compared performer's competitive anxiety responses between athletes who interpret their symptoms as either facilitative or debilitative towards their performance.

An example was the work of Perry and Williams (1998). The main focus of their paper examined whether sex moderated an athletes interpretation of competitive trait anxiety. However, following guidelines outlined by Jones et al. (1994), as an additional aim to the study, Perry and Williams also examined potential differences in anxiety responses between athletes who perceived their symptoms as either facilitative or debilitative towards performance by splitting their sample into 'debilitators' and 'facilitators'. Criteria for selection as a 'debilitator' resulted from recording a negative score on the direction scale of the CSAI-2 for both the constructs of cognitive and somatic anxiety. In comparison, criteria for selection as a 'facilitator' resulted from recording a positive score on both the direction scale of cognitive and somatic anxiety. This led to the removal of performers who scored 0 for either construct or who exhibited a mixed interpretational profile (i.e., facilitative for one construct and debilitative for the other). Perry and Williams (1998) compared the competitive anxiety

[4.2] Elite athletes mean responses for cognitive and somatic anxiety direction were 4.07 and 6.59 respectively compared to 0.47 and 1.54 in the non-elite group.

[4.3] High competitive players mean responses for cognitive and somatic anxiety direction were 7.00 and 7.23 respectively compared to 2.45 and 4.88 in the low competitive players.

responses for the two groups on the intensity dimension and found that facilitators showed lower intensities for cognitive and somatic trait anxiety and higher intensities for trait self-confidence.

More recently, Jones and Hanton (2001) used a similar procedure when separating swimmers into facilitators and debilitators to examine group responses on a list of positive and negative feeling state labels. Underpinned by research in clinical (e.g., Clore, Ortony, & Foss, 1987), and exercise settings (e.g., Gauvin & Spence, 1998), Jones and Hanton (2001) created a composite checklist of 22 feeling states designed to characterise negative and positive pre-performance affective states[4.4]. Results indicated that facilitators reported a significantly higher number of positively labelled pre-performance affective states than the debilitators and that the debilitators reported a significantly higher number of negatively labelled pre-performance affective states than the facilitators.

Therefore, a limited line of research exists that indicates athletes who perceive the symptoms of competitive anxiety as facilitative show different responses to competitive stress than those who perceive them as debilitative. However, the studies outlined above suffer several limitations in relation to the general aims of this thesis. First, neither study considered the reactions to competitive stress as temporal processes that have the potential to vary through preparation times for competition; they only considered single time points close to competition. As previously noted in this thesis, this represents a rather limited view of the stress process (cf. Lazarus, 1999, 2000; Cerin et al., 2000). Additionally, neither study alluded to the frequency dimension of the responses. In view of the results emanating from Swain and Jones' (1990, 1993) studies, the views espoused in emotion research, and study one of this thesis, this presents a

[4.4] Jones and Hanton (2001) categorised confident, excited, focused, relaxed, composed, psyched-up, active, energetic, lively, determined and motivated as positive pre-performance affective states; and doubtful, tense, anxious, upset, scared, lethargic, jittery, nervous wreck, lazy, distressed and depressed as negative pre-performance affective states.

rather limited view of the potential responses to the process of competitive stress. There remains scope for an examination of how athletes with debilitative and facilitative interpretations of competitive anxiety react to competitive stress over time across the dimensions of the response. This research topic becomes increasingly apparent when one considers that previous studies examining the dimensions of competitive anxiety over time have all utilised athletes with facilitative interpretations of their anxiety symptoms (i.e., Swain & Jones, 1990, 1993; Wiggins, 1998; study one of this thesis).

Although previous research in sport psychology has not examined this research question, one study within test anxiety has addressed such concerns. Raffety, Smith and Ptacek (1997) examined state anxiety responses in the time leading up to the stressful event of a mid-term academic exam in a population of students who were separated by their interpretations of anxiety symptoms. Using a modification of the debilitating and facilitating scales of the Achievement Anxiety Test (Alpert & Haber, 1960), a trait measure of directional perceptions, participants were separated into groups who perceived their pre-exam anxiety and symptoms as either facilitative ('facilitators') or debilitative ('debilitators') towards exam performance. The students then completed the multidimensional Definitional Anxiety Inventory (DAI; Raffety et al., 1997), once a day in the 7 days leading up to the mid-term exam. The DAI accounted for three constructs of test anxiety, namely worry, tension and distraction. However, as a modification to the original DAI Raffety et al. (1997) included a scale assessing the frequency of symptoms in addition to the traditional scale used to assess the intensity dimension. Specifically, students responded to seven statements on two 5 point scales which ranged from 'very mild' to 'very strong' for intensity, and from 'almost never' to 'almost constantly' for frequency. When analysing group differences, results indicated debilitators showed higher intensities and frequencies of worry, distraction and tension than facilitators

throughout the pre-exam time period. Further, no interaction effects were noted in the results indicating that these differences were consistent over the pre-examination period.

The findings of Raffety et al. (1997) suggested that debilitators and facilitators respond with different symptom intensities and frequencies when reacting to examination stress. This type of research methodology has not yet been applied to when investigating athletes' responses to competitive stress. The aim of this study was to integrate Raffety et al.'s.(1997) 'facilitators' versus 'debilitators' approach into preparation based time-to-competition anxiety research in line with the recommendations of Lazarus (1999, 2000) and Cerin et al. (2000). Further, the study also gave scope for athletes with 'mixed' interpretations of competitive anxiety symptoms to be included. Specifically, no previous research in either sport or general settings has included participants that exhibit a debilitative interpretation of cognitive anxiety symptoms and a facilitative interpretation of somatic anxiety symptoms, i.e., a mixed interpretation.

4.3 AIMS OF STUDY TWO

Study two will attempt to further the process orientated approach to the collective assessment of the dimensions of competitive anxiety intensity, directional perceptions and frequency in the time leading up to competition (cf. Cerin et al., 2000; Lazarus, 1999, 2000; Woodman & Hardy, 2001). The individual difference variable of directional perceptions will be investigated as a possible moderator of these responses (cf. Jones & Hanton, 2001; Raffety et al., 1997). Specifically, individuals who interpret their symptoms as facilitative, debilitative or mixed towards performance will be investigated throughout a 7 day pre-competition preparation phase. A subsidiary aim of the study is to calculate internal reliability scores for the modified CSAI-2. Although

previous research has calculated scores for the intensity and direction scales no previous research has established reliability scores for the frequency scale.

4.31 HYPOTHESES

Tentative hypotheses were put forward for between subject effects of symptom interpretation over anxiety responses over time. Specifically, these hypotheses were based only on associated research programmes, namely, the single time point immediately before competition affective labelling research of Jones and Hanton (2001), and the trait anxiety work of Perry and Williams (1998). Additionally, the related test anxiety research of Raffety et al. (1997) was used due to the temporal nature of the study and its inclusion of a frequency dimension. For the dimension of intensity, the hypothesis was based on the work of Jones and Hanton (2001), Perry and Williams (1998) and Raffety et al. (1997) and it was expected that: -

(1) Facilitators will experience lower levels of cognitive and somatic anxiety and higher intensities of self-confidence throughout the pre-competition preparation period.

For the direction dimension the hypothesis was also based on the research of Jones and Hanton (2001), Perry and Williams (1998) and Raffety et al. (1997) and it was expected that: -

(2) Facilitators will interpret their symptom intensities of cognitive and somatic anxiety as more facilitative towards performance than debilitators throughout the pre-competition preparation period.

For the frequency dimension the hypothesis was based on the research of Raffety et al. (1997) and indicated that: -

(3) Facilitators will experience less frequency of cognitive and somatic anxiety symptoms and higher frequency of self-confidence symptoms than debilitators throughout the pre-competition preparation period.

Several hypotheses were also constructed for the within subjects variable of time-to-competition. The proposals for the intensity dimension were based on the original predictions of Martens et al. (1990) and it was proposed that:-

(4) Cognitive anxiety and self-confidence will remain stable in the time leading up to competition where as somatic anxiety will increase at times close to competition.

For the direction perceptions dimension, the hypothesis was based on the work of Wiggins (1998) and the findings of study one, and was expected that: -

(5) No time-to-competition effects will be displayed in the direction dimensions of cognitive anxiety, somatic anxiety and self-confidence.

For the frequency dimension the hypothesis was based on the preliminary work of Swain and Jones (1990, 1993) and the findings of study one, and it was anticipated that:-

(6) Cognitive and somatic anxiety frequency will increase progressively as the competition moved closer, but self-confidence frequency will remain stable throughout the pre-competition preparation period.

No hypotheses were put forward for interaction effects between the independent variables. Justification for this stance rested with the lack of interaction effects noted in study one, the dearth of previous research to support hypotheses generation, and the conceptual complexity of prosing interaction effects between symptom interpretation and time-to-competition.

4.4 METHOD

4.41 PARTICIPANTS

Sixty competitive athletes ($N = 31$ males; $N = 29$ females) were recruited to participate in the study. The athletes were all national or county level performers in their respective sports with an age range of 18 to 38 years ($M = 22.15$; $SD = 4.64$). Table (4.1) details the composition of the participant sample in terms of sport type, gender and competitive level. Finally, in order to test the temporal fluctuations of athletes with differing interpretations of anxiety pre-experimental procedures were conducted to aid selection into experimental groups.

4.42 INSTRUMENTATION[4.5]

Two inventories were used within the current study. Martens et al.'s (1990) CSAI-2 modified to include scales for the dimensions of directional perceptions (Jones & Swain, 1992) and frequency (Swain & Jones, 1993) was used to measure competitive anxiety symptoms during the temporal period leading up to competition. Additionally,

[4.5] View Appendix 4.1 for a full copy of the inventory booklet.

Table (4.1) Participant Characteristics

Sex	*N*	*N*	Competitive level	*N*	Sport	*N*
Male	31	50	National/Regional	32	Field Hockey	26
Female	29	10	County	28	Rugby Union	16
					Soccer	8
					Athletics	6
					Swimming	4

the Competitive Trait Anxiety Inventory-2 (CTAI-2; Albrecht & Fetlz, 1987) modified to include scales for directional perceptions (Jones & Swain, 1995) was used to aid group selection via symptom interpretation (facilitative, debilitative and mixed) at the trait level.

4.421 THE MODIFIED CSAI-2

The structure of the modified CSAI-2 was identical to the inventory used in study one, and a review of that scale is not repeated here, the reader is referred to section 3.421 of Chapter III.

4.422 THE MODIFIED CTAI-2

Following the work of Albrecht and Feltz, (1987) the instructional set associated with the CTAI-2 has been modified to examine how the individual 'usually feels about competition' thus creating a general or trait measure. Additionally, the CTAI-2 has been adapted to include a direction scale in empirical studies examining the role of anxiety perceptions at the trait level (Hanton & Jones, 1999a; Jones & Swain, 1995; Perry & Williams, 1998). In order to lessen the demand placed on participants, the self-confidence scale of the CTAI-2 was removed in line with the procedures adopted by Jones and Swain (1995). The primary reason for completing the scale was to emphasise group selection at the trait level for interpretation of cognitive and somatic symptoms. Therefore, the CTAI-2 used totalled 18 items (9 cognitive anxiety; 9 somatic anxiety) across the dimensions of intensity and direction. Intensity ratings were recorded on a 1 ('not at all') to 4 ('very much so') scale realising a range of scores between 9 to 36 and directional perception ratings were marked on a -3 ('very debilitative: negative') to +3 ('very facilitative: positive' 0 indicating 'unimportant interpretation') scale producing a range of scores between -27 to +27. Internal reliabilities (Cronbach's alpha coefficients) of the modified CTAI-2 indicate acceptable standards and are cited to range between .78

to .84 across cognitive and somatic anxiety intensity and direction scales (Perry & Williams, 1998).

4.43 PROCEDURES

In order to compare potential differences in anxiety symptoms throughout preparation time for competition, an independent variable was created derived from interpretations of anxiety at the trait and state level (cf. Jones & Hanton, 2001; Perry & Williams, 1998). The identification of these symptom interpretations formed the pre-experimental procedures with the bulk of the data collection undertaken under the main experimental procedures guidelines.

4.431 PRE-EXPERIMENTAL PROCEDURES[4.6]

Initial contact with the participants was gained through approaches to team or club coaches and/or officials in the Yorkshire area. Following initial discussions into the broad aims of the research four national league clubs across the sports of field hockey and rugby union and several national/regional and county level performers from various other sports agreed to participate in the study. Prior to a regular training session, the researcher was introduced to the players and the participant groups were briefed about the procedures and the timetable of the research. Following this, volunteers were identified who agreed to participate in the study.

During the initial contact session athletes were informed that the researcher was interested in understanding more about their pre-competitive mental states. As such, they were introduced to the pre-experimental measures of the CTAI-2 and CSAI-2 (both with the self-confidence subscales removed). The CTAI-2 was completed during the

[4.6] Please note, the procedures conducted in this study were approved in the 'Pre-Approved' procedures section of the Sheffield Hallam University School of Sport and Leisure Management Ethics Committee guidelines. Therefore, ethical clearance for the study was fulfilled.

initial contact session with athletes asked to respond to the instructional set of 'how you usually feel about competition' (Albrecht & Feltz, 1987; Jones & Swain, 1995; Perry & Williams, 1998). Further, athletes were issued with a modified CSAI-2 (instructional set 'how you feel right now') and directed to complete the inventory 1 hour prior to their next national league or county level fixture. Finally, athletes were asked to complete a general demographic questionnaire where they indicated their written consent to be involved in the research programme.

4.432 EXPERIMENTAL PROCEDURES

Data were collected at four pre-competition stages (7 days, 2 days, 1 day, 1 hour) using the modified CSAI-2. The decision not to collect data 30 minutes prior to competition as in study one was based on feedback provided by several participants involved in study one. Specifically, the use of the modified CSAI-2 across the three dimensions (intensity, directional perceptions and frequency) at the 30 minute pre-competition stage was suggested to interfere with the preparation routines of the performers (cf. Hanton, Mellalieu, & Young, 2002; Thomas, Hanton & Jones, 2002). The pre-competition stages selected reflected the time scales used in previous temporal based research designs listed in Table 2.1, 2.2, 2.3 and 2.4. At the beginning of the temporal period a meeting was held with the participants where they were reintroduced to the modified CSAI-2 where the inclusion of the scale accounting for self-confidence was noted. During this session the temporal stages were outlined to the participants and they were referred to the standardised guidelines of Martens et al. (1990) and asked to respond to the instructional set of 'how you feel right now' each time they completed an inventory.

4.433 GROUP SELECTION

Group selection resulted from criterion scores on the two anxiety inventories issued during the pre-experimental procedures thus verifying participants' interpretation of anxiety symptoms. Participants were assigned to the debilitative group (negative interpretation) through scoring a negative (-27 to –1) score on both the trait and state inventories for the constructs of cognitive and somatic anxiety. Facilitative group selection resulted from obtaining a positive score (+1 to +27) on both the trait and state inventories across both anxiety constructs. Mixed group selection resulted from scoring a negative interpretation for cognitive anxiety (-27 to -1) and a positive interpretation (+1 to +27) for somatic anxiety across both the trait and state inventories.

It should be noted that no group was generated from a directional perception profile of cognitive anxiety positive, and somatic anxiety negative, because very few participants tested ($N = 3$) produced this profile. The researcher attributes this to the type of sport classifications involved in the study. In short, the recent work of Hanton et al. (2000) suggested sport type, and more specifically the arousal demands of the sport mediates directional interpretations. Their findings supported the hypothesis that sports with high arousal demands (e.g., physical team games) would display more positive interpretations of somatic components in comparison to sports requiring fine neuromuscular control (e.g., shooting). Therefore, it was concluded that the sporting classifications represented in the current research would be unlikely to show a mixed profile of cognitive facilitation and somatic debilitation. Athletes who scored a positive score on the CTAI-2 and a negative score on the CSAI-2 or vice versa for the same anxiety construct were removed from the analysis ($N = 12$). The pre-experimental procedures realised a participant population ($N = 60$) containing three distinct experimental groups separated by anxiety interpretations at the trait and state level;

namely, a 'debilitators' group ($N = 20$), a 'facilitators' group ($N = 20$) and a 'mixed interpreters' group ($N = 20$).

4.5 RESULTS

4.51 DATA ANALYSIS

Analysis of data was divided into three separate stages. First, data were subjected to a pre-screening procedure in order to assess the possible impact of sex and skill level over modified CSAI-2 scores. This was achieved through a series of one-way MANOVA that tested for potential covariate influences of these variables over anxiety and confidence scores (cf. Jones et al., 1993; Jones & Hanton, 2001). Stage two involved a correlational analysis between the constructs of the CSAI-2 testing the inter-relationships between the components at each pre-competition stage. Additionally, to emphasise the importance of measuring separate dimensions of anxiety and self-confidence, a correlational analysis between the intensity and direction scales and intensity and frequency scales of the CSAI-2 was conducted. Integrated into this stage of the analysis was a calculation of internal reliability coefficients for the intensity, directional perceptions and frequency scales of the CSAI-2.

Stage three involved the presentation of pre-competitive anxiety and self-confidence means and standard deviations across all experimental groups over each of the pre-competition preparation time phases considered. Subsequent temporal patterns of anxiety and self-confidence were analysed using a series of MANOVA which tested for main and interactional effects of experimental group (facilitators, debilitators and mixed interpreters) by time-to-competition (repeated measures on the second factor), across the state anxiety and confidence variables for each inventory subscale and dimension.

4.52 DATA PRE-SCREENING: THE IMPACT OF SEX AND SKILL LEVEL ON ANXIETY AND CONFIDENCE

Due to the impact that sex and skill level have shown to exert over competitive anxiety responses (see Sections 2.832, 2.834, and 2.836 in Chapter II), pre-screening analysis examined the possible effects of these variables on CSAI-2 scores throughout the pre-competition time period. As such, a series of separate one-way MANOVA were conducted to examine the effects of sex and skill level on the individual anxiety and confidence constructs and dimensions for data pooled across all time phases[4.7]. Sex and skill level acted as the independent variables, with cognitive anxiety intensity, direction and frequency, somatic anxiety intensity, direction and frequency and self-confidence intensity, direction and frequency acting as the dependent variables in each analysis.

Table 4.2 highlights the results derived from the MANOVA. A synopsis of the findings indicated that no significant effects ($P>.05$) were evident for sex or skill level over the intensity, directional perceptions and frequency of anxiety and confidence variables across all time phases. The culmination of this pre-screening process resulted in the collapsing of data across sex and skill level with the knowledge that future interaction and main effects (if identified) could be attributed to the experimental group variable of interpretation and not other individual difference variables.

[4.7] A detailed outline to the structure and assumption testing of the analyse are located in Appendix 4.2.

Table (4.2) Pre-screening MANOVA Results for Sex and Skill Level Across all Dimensions

Variable	Inventory	Effect	Wilks' Lambda	*F*	Hdf, Edf	*p*
Intensity	CSAI-2	Sex	0.724	1.496	12, 47.	0.160
Direction	CSAI-2	Sex	0.724	1.489	12, 47	0.162
Frequency	CSAI-2	Sex	0.790	1.040	12, 47	0.430
Intensity	CSAI-2	Skill level	0.819	0.868	12, 47	0.584
Direction	CSAI-2	Skill level	0.808	0.931	12, 47	0.525
Frequency	CSAI-2	Skill level	0.750	1.302	12, 47	0.249

Legend: Hdf = Hypothesis degrees of freedom; Edf = Error degrees of freedom

4.53 Inter Relationships Between CSAI-2 Constructs and Dimensions Across all Time Periods.

Inter-relationships between constructs of the CSAI-2 intensity components were calculated as competition neared and are presented in Table (4.3). Over all, the relationships between the constructs reflected those reported by Gould et al. (1984) and study one for times leading up to competition. Further, the values observed for times just prior to competition are consistent with those reported in single time immediately before competition research designs (e.g., Hanton et al., 2000; Jones et al., 1993). In short, these results emphasise the independence of the anxiety constructs during the preparation time for competition.

Additionally, to emphasise the importance of distinguishing between dimensions of intensity and direction and intensity and frequency, correlational analyse were conducted for each construct with results depicted in Table (4.4) and Table (4.5) respectively. The common variance proportions observed between the intensity and direction dimensions for cognitive anxiety and somatic anxiety are comparable with those reported in study one and previous directional perceptions research (e.g., Hanton et al., 2000; Jones et al., 1993). In short, the scales shared at best 11% common variance through the pre-competition preparation period; findings that further emphasise the importance of distinguishing between these separate dimensions of the competitive anxiety response. Interestingly, as in study one; the shared variance proportions noted between self-confidence intensity and direction were lower than those reported by Jones et al. (1993). The variance proportions in this study reached a maximum of 28% throughout the pre-competition period, which although similar to the 24% maximum value observed in study one (see Table 3.2) is still lower than the 64% common variance noted by Jones et al. (1993). These results add further support to the

Table (4.3) Inter-relationships Between CSAI-2 Intensity Subscales

	Correlations (% common variance)		
Time Period	CA - SA	CA -SC	SA - SC
7 days	0.40 (16%)	-0.44 (19%)	-0.48 (23%)
2 days	0.50 (25%)	-0.43 (18%)	-0.54 (29%)
1 day	0.46 (21%)	-0.39 (15%)	-0.57 (32%)
1 hour	0.44 (19%)	-0.37 (14%)	-0.44 (19%)

Table (4.4) Inter-relationships Between CSAI-2 Dimensions (Intensity-Direction)

	Correlations (% common variance)		
Time Period	CA	SA	SC
7 days	-0.31 (9%)	-0.24 (6%)	0.51 (26%)
2 days	-0.27 (7%)	-0.28 (8%)	0.53 (28%)
1 day	-0.22 (5%)	-0.23 (5%)	0.49 (24%)
1 hour	-0.33 (11%)	-0.25 (6%)	0.50 (25%)

Table (4.5) Inter Relationships Between CSAI-2 Dimensions (Intensity-Frequency)

	Correlations (% common variance)		
Time Period	CA	SA	SC
7 days	.292 (8%)	.287 (8%)	.301 (19%)
2 days	.214 (5%)	.311 (10%)	.519 (26%)
1 day	.397 (16%)	.418 (17%)	.551 (30%)
1 hour	.406 (17%)	.377 (14%)	.508 (25%)

Legend: - CA = Cognitive anxiety; SA = Somatic anxiety; SC = Self-confidence

measurement of self-confidence direction as a separate construct from self-confidence intensity. The common variance proportions observed between the intensity and frequency dimensions are similar to those reported in study one (view Table 3.3), indicating a small degree of shared variance between the two dimensions. These findings add further weight to the notion that intensity and frequency of intrusions dimensions of competitive anxiety should be considered as separate dimensions of the response, supporting general psychologist's emotion-based research (e.g., Diener et al., 1991; Kardum, 1999).

4.54 Internal Reliability Scores of the Modified CSAI-2

Cronbach alpha coefficients were calculated for each subscale and dimension across each pre-competition time period and are presented in Table 4.6. The reliability coefficients observed for the intensity dimension ranged from .70 to .93 which reflect internal consistency in the scale and are in line with those originally reported by Martens et al. (1990) and those previously detailed in the literature (e.g., Hanton et al., 2000; Jones & Hanton, 1996; Swain & Jones, 1996). For the direction scale, values ranged between .87 to .93 during the time leading up to competition. Again, these coefficients reflect internal consistency within the direction scale and are in line with those previously reported in the literature (e.g., Hanton et al., 2000; Jones & Hanton, 1996; Swain & Jones, 1996).

The primary reason for calculating coefficients related to the need to examine the internal reliability of the frequency scale. No previous research has conducted such an analysis of the CSAI-2's frequency scale, however, the coefficients reported here ranged from .87 to .93. These values indicated the frequency scale of the CSAI-2 exhibits internal reliability.

Table (4.6) Internal Reliability Assessments of the Modified CSAI-2 Across Each Pre-competition Time Phase

Variable	7 Days	2 Days	1 Day	1 Hour
Intensity				
Cognitive	.83	.88	.86	.89
Somatic	.70	.73	.83	.92
Self-confidence	.88	.93	.90	.93
Direction				
Cognitive	.86	.87	.88	.90
Somatic	.90	.89	.90	.86
Self-confidence	.93	.94	.89	.92
Frequency				
Cognitive	.91	.91	.89	.92
Somatic	.93	.92	.91	.90
Self-confidence	.87	.92	.88	.90

4.55 Time-to-competition Changes in the Dimensions of Competitive Anxiety as a Function of Interpretation

A series of 3 (group) x 4 (time-to-competition) MANOVA's with repeated measures on the second factor were conducted testing for main and interactional effects by interpretation and time[4.8]. Separate analyses were performed across the individual anxiety and confidence dimensions (intensity; direction; frequency) with cognitive anxiety, somatic anxiety and self-confidence acting as the dependent variables across all time periods, and level of interpretation acting as the independent variable within each analysis. Of the several multivariate test statistics available, Pillia's Trace was chosen due to the assumption of co-variance matrices being violated in some cases at the multivariate level (see Appendix 4.2). Pillia's Trace has been shown to be robust over test violations and was therefore deemed the most appropriate criterion statistic (Field, 2000; Tabachnick & Fidell, 1996).

No interaction effects were observed in any of the MANOVA's conducted suggesting that any change-over-time patterns were consistent (or parallel) across the three interpretation groups of facilitators, debilitators and mixed interpreters. This resulted in data being collapsed over the three interpretation groups for the change-over-time analysis with overall mean values across each dimension and pre-competition time period displayed in Table (4.7).

However, significant main effects were observed for interpretational group (facilitative, debilitative, mixed) and change-over-time to competition within several dimensions of pre-competitive anxiety and confidence symptoms. The identification of such significant multivariate main effects was followed with two-way mixed design ANOVA testing for between-subject differences of interpretational group (facilitative;

[4.8] A detailed outline to the structure and assumption testing of the analysis are located in Appendix 4.3.

Table (4.7) Anxiety and Confidence Means and Standard Deviations Over all Time Periods Collapsed Across all Interpretation Groups

Variable	7 Days	2 Days	1 Day	1 Hour
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
CA-I	17.62 (5.28)	18.83 (5.72)	20.23 (5.73)	21.68 (6.18)
SA-I	11.23 (2.77)	13.10 (3.34)	13.88 (3.92)	17.52 (5.47)
SC-I	26.82 (6.07)	25.48 (6.17)	26.22 (5.76)	24.62 (6.08)
CA-D	-1.12 (9.31)	-1.27 (9.70)	-1.08 (10.64)	-4.25 (10.44)
SA-D	3.20 (8.99)	4.13 (9.15)	3.55 (10.03)	0.70 (9.10)
SC-D	11.88 (9.56)	12.73 (8.54)	13.12 (7.13)	10.92 (8.96)
CA-F	29.45 (12.70)	34.13 (11.03)	34.73 (11.96)	39.73 (13.34)
SA-F	22.75 (12.25)	26.17 (12.04)	28.57 (12.87)	35.00 (13.64)
SC-F	40.10 (10.67)	41.52 (9.66)	41.65 (10.27)	40.40 (10.91)

Legend: -

CA = Cognitive anxiety; SA = Somatic anxiety; SC = Self-confidence; I = Intensity; D = Directional perceptions; F = Frequency

debilitative; mixed) and within-subjects repeated measures effects for time-to-competition (with results collapsed over all experimental groups).

Group findings indicated significant multivariate main effects across all dimensions suggesting that interpretation (i.e., facilitative; debilitative; mixed) affected the intensity, direction and frequency of anxiety and self-confidence symptoms throughout the pre-competition preparation period (Table 4.8). Follow-up between subject univariate approaches (Table 4.9) and appropriate pairwise comparisons indicated that differences were observed for self-confidence intensity with facilitators experiencing significantly greater levels of self-confidence than debilitators (Figure 4.1 and Appendix 4.3).

For the direction dimension, univariate ANOVA's revealed group differences for both the constructs of cognitive and somatic anxiety (Table 4.9). Follow-up pairwise comparisons for cognitive anxiety indicated the facilitators were significantly more positive in their interpretation of cognitive anxiety than both the debilitators and mixed interpreters (Figure 4.2 and Appendix 4.3). Where as for somatic anxiety, debilitators viewed their symptoms as significantly more negative towards performance than the counterpart groups of facilitators and mixed interpreters (Figure 4.3 and Appendix 4.3). For the dimension of frequency, significant group differences were observed for cognitive anxiety and self-confidence but not for somatic anxiety (Table 4.9). Follow-up Bonferroni pairwise comparisons indicated debilitators thought about cognitive anxiety for significantly more time than facilitators (Figure 4.4 and Appendix 4.3). Additionally, debilitators thought about self-confidence symptoms for significantly less time than the athletes with a facilitative interpretation of their pre-competition symptoms (Figure 4.5 and Appendix 4.3).

Table (4.8) Significant Multivariate Interpretation Main Effects

Variable	Effect	Hdf; Edf	Pillai's Trace	*F*	*p*
Intensity	Interpretation	6, 110	.777	2.46	.020
Direction	Group	6, 110	.377	11.53	<.001
Frequency	Group	6, 110	.725	3.20	.006

Table (4.9) ANOVA Summaries For Interpretation Main Effects

Variable	Construct	df	*F*	*p*
Intensity	Self-confidence	2, 57	6.70	.002
Direction	Cognitive	2, 57	32.40	<.001
	Somatic	2, 57	18.81	<.001
Frequency	Cognitive	2, 57	4.59	.014
	Self-confidence	2, 57	3.61	.032

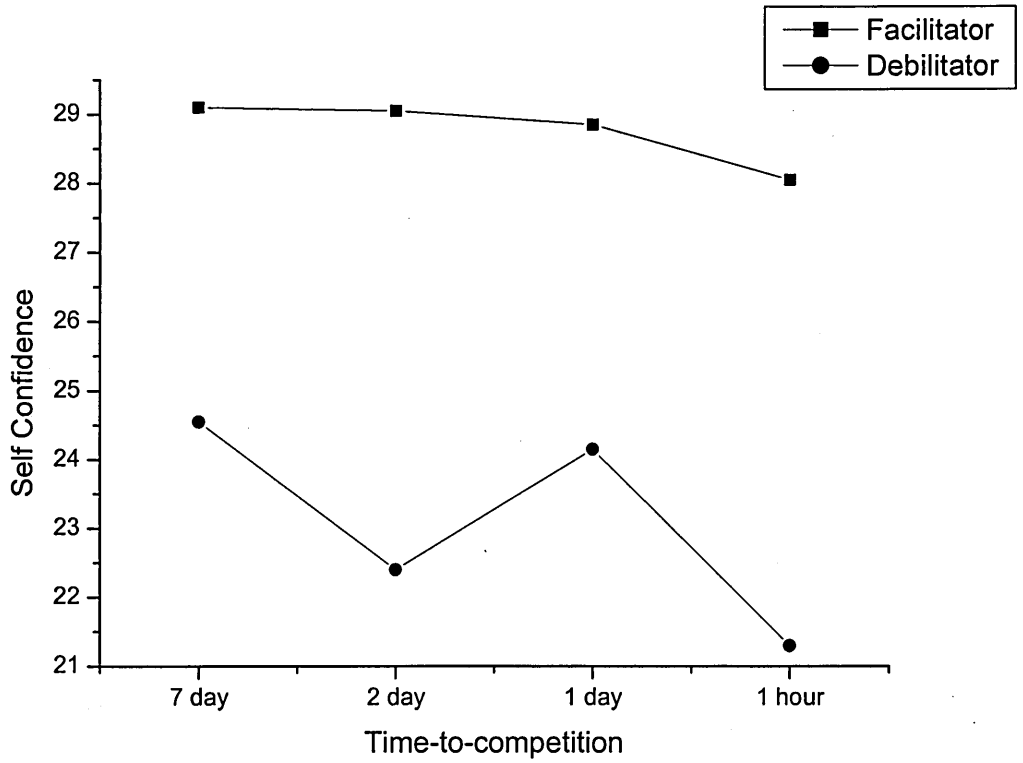

Figure (4.1) Self-Confidence Intensity Interpretation Main Effects

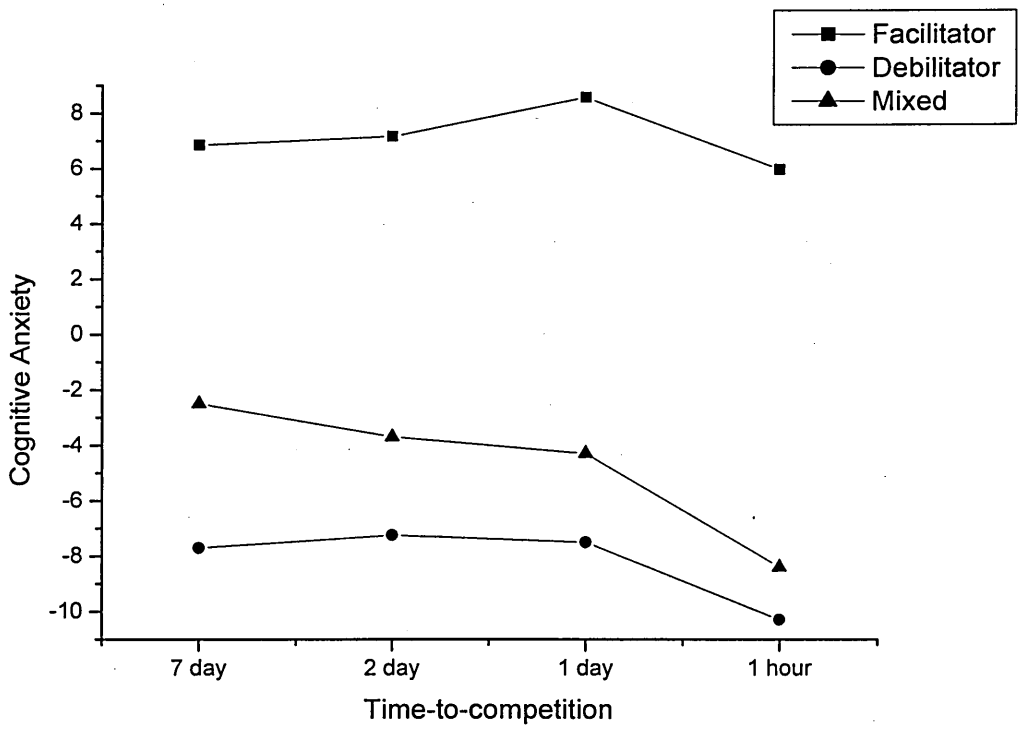

Figure (4.2) Cognitive Anxiety Direction Interpretation Main Effects

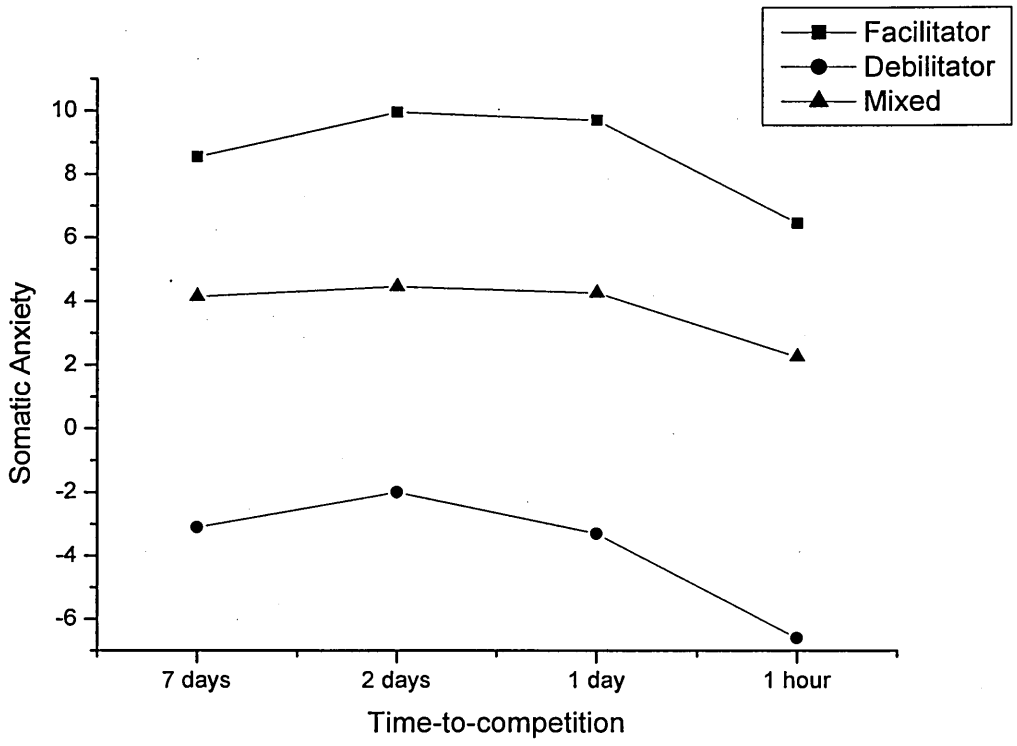

Figure (4.3) Somatic Anxiety Direction Interpretation Main Effects

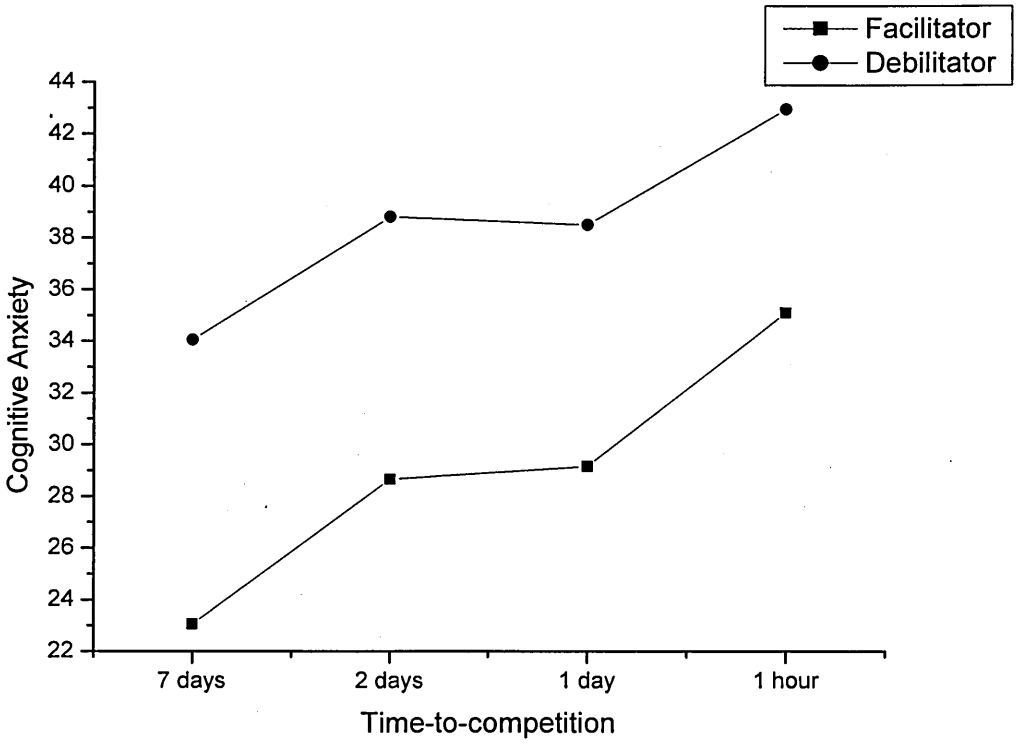

Figure (4.4) Cognitive Anxiety Frequency Interpretation Main Effects

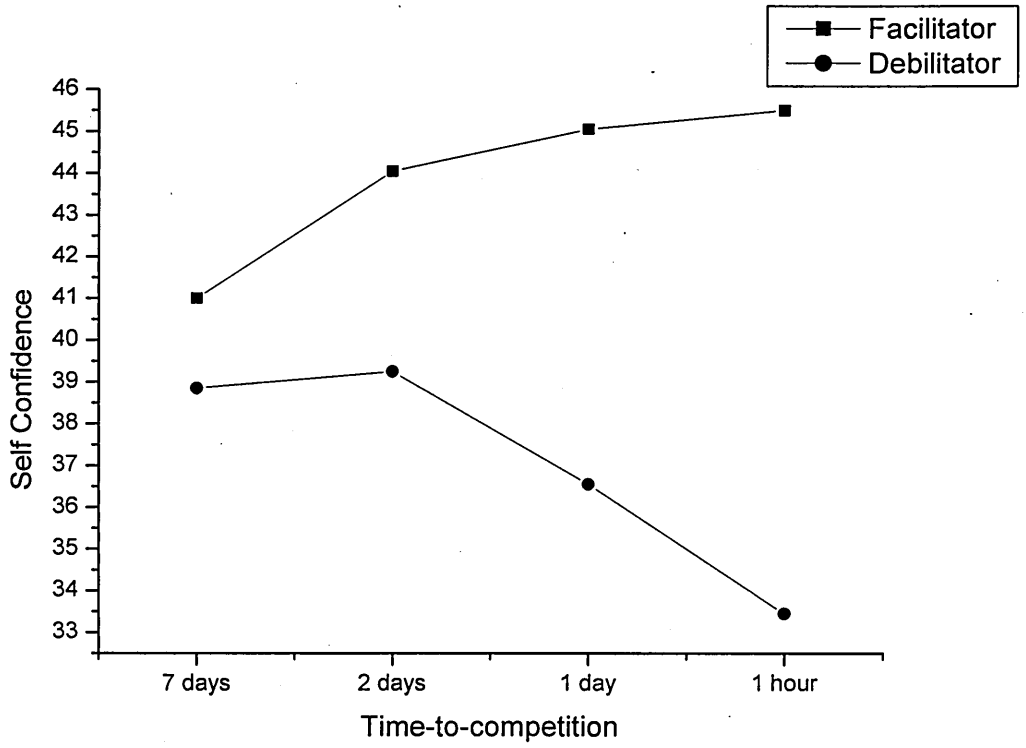

Figure (4.5) Self-confidence Frequency Interpretation Main Effect

Multivariate significant change-over-time main effects were observed in all dimensions of anxiety and self-confidence suggesting time to competition changes in the intensity, direction and frequency of state responses (Table 4.10). Follow-up within-subject repeated measures ANOVA's are presented in Table (4.11) with the appropriate post-hoc pairwise comparisons detailed in Appendix 4.3. For the intensity dimension, change-over-time effects were observed in cognitive anxiety, somatic anxiety and self-confidence (Table 4.11). Follow-up comparisons indicated cognitive anxiety remained stable over the initial pre-competition preparation period and then increased successively between 2 days to 1 day and 1 day to 1 hour before competition (Figure 4.6 and Appendix 4.3). Somatic anxiety showed an increase from 7 days to 2 days before competition followed by stable responses up to 1 day before competition with a final increase observed on the day of competition (Figure 4.6 and Appendix 4.3). In comparison, self-confidence was stable across the pre-competition preparation period with the exception of a decrease from 1 day to 1 hour before the event (Figure 4.6 and Appendix 4.3).

Within the direction dimension, significant time-to-competition effects were obtained for the constructs of cognitive and somatic anxiety (Table 4.11). Follow-up pairwise comparisons in both constructs indicated stable patterns up to 1 day before the event followed by a decrease to the 1 hour pre-competition period (Figure 4.7 and Appendix 4.3). Finally, change over time patterns for the frequency dimension indicated time-to-competition effects for the constructs of cognitive and somatic anxiety (Table 4.11). In short, the amount of time participants thought about cognitive anxiety increased between 7 days to 2 days and 1 day to 1 hour before competition (Figure 4.8 and Appendix 4.3). In comparison, the amount of time athletes experienced somatic symptoms increased through the successive stages of the pre-competition preparation period (Figure 4.8 and Appendix 4.3).

Table (4.10) Significant Multivariate Time-to-competition Main Effects

Variable	Effect	Hdf; Edf	Pillai's Trace	*F*	*p*
Intensity	Change-over-time	9, 49	.248	16.54	<.001
Direction	Change-over-time	9, 49	.626	3.25	.004
Frequency	Change-over-time	9, 49	.409	7.87	<.001

Table (4.11) Within Subjects Repeated Measures ANOVA Summaries For Time-to-competition Main Effects

Variable	Construct	df[4.9]	*F*	*p*
Intensity	Cognitive	2, 139	24.22	<.001
	Somatic	2, 104	68.59	<.001
	Self-confidence	2, 143	5.44	.003
Direction	Cognitive	3, 151	5.82	.002
	Somatic	3, 150	5.09	.004
Frequency	Cognitive	2, 116	25.90	<.001
	Somatic	2, 116	39.46	<.001

[4.9] The assumption of Sphericity was violated, therefore the Green-House Geiser correction factor was applied to the degrees of freedom for subsequent *F* statistic calculation (Cookes & Stead, 1999; Roberts & Russo, 1999).

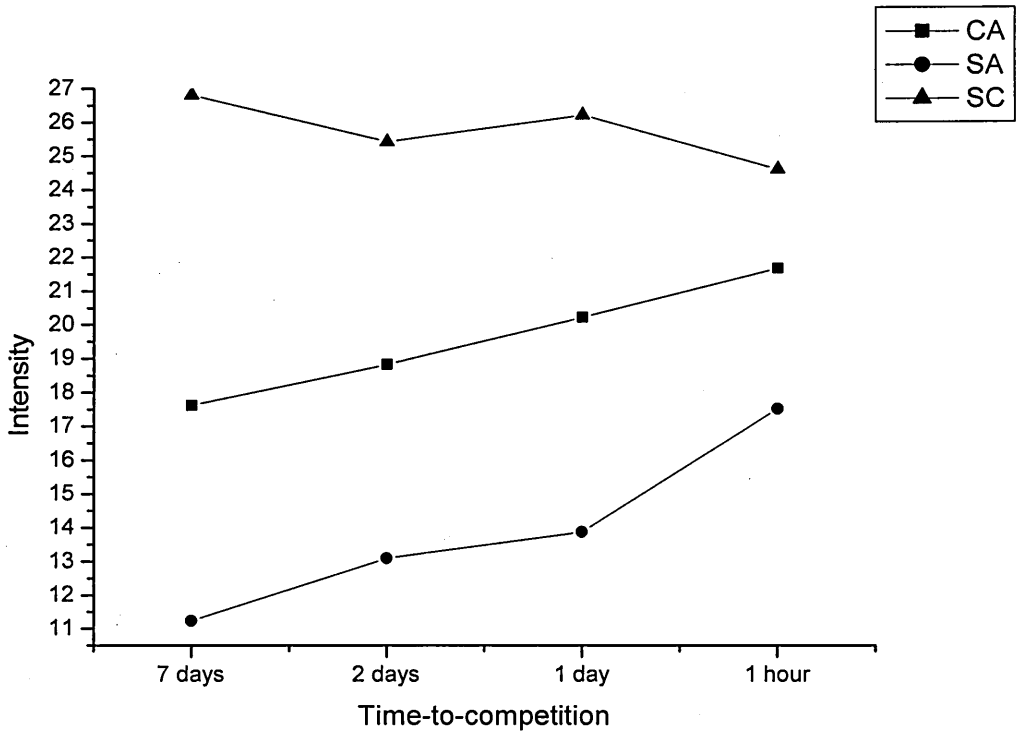

Figure (4.6) Time-to-competition Effects for Intensity of Responses

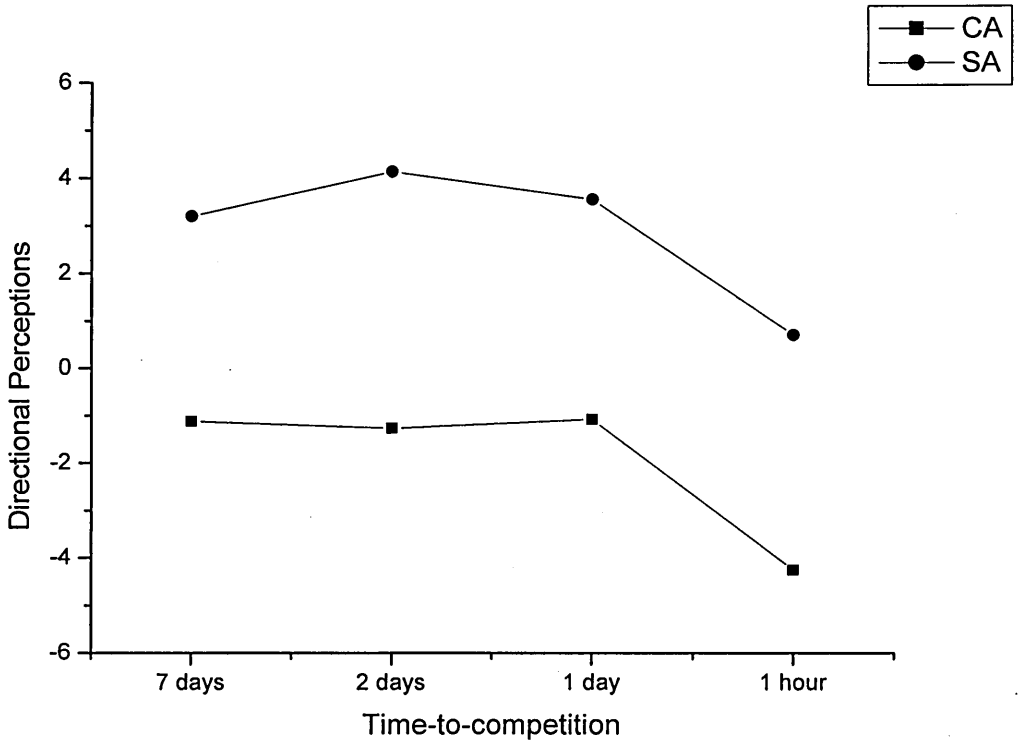

Figure (4.7) Time-to-competition Effects for Direction of Responses

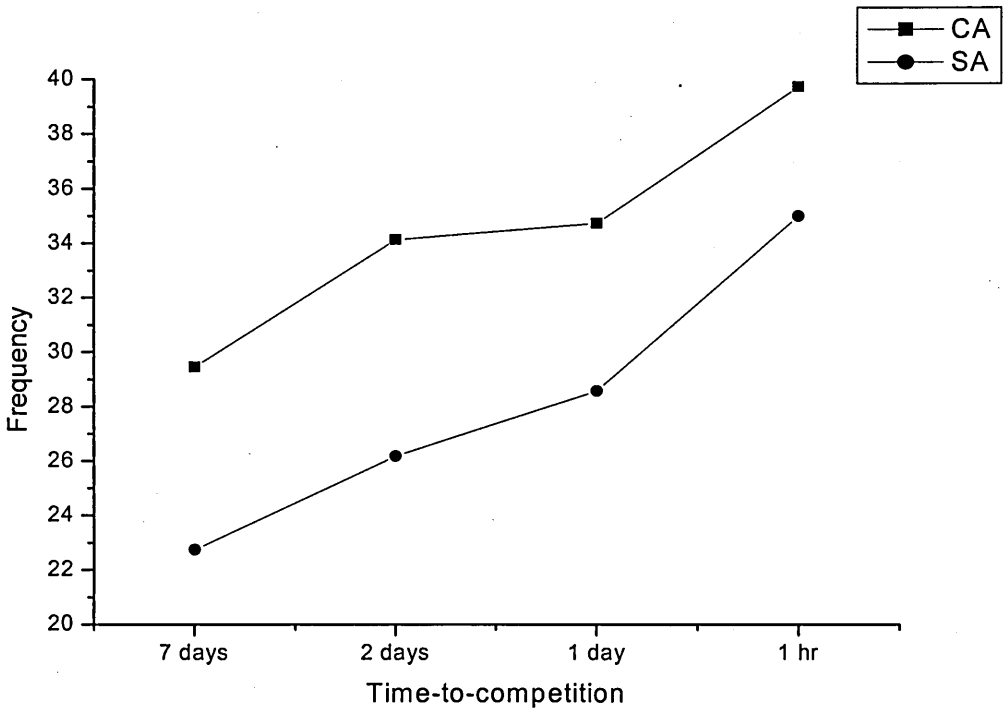

Figure (4.8) Time-to-competition Effects for Frequency of Responses

4.6 DISCUSSION

4.61 SHARED VARIANCES AND INTERNAL RELIABILITIES OF THE CSAI-2 SUBSCALES

The correlation coefficients derived from this study provide support for the notion that the dimensions of intensity, directional perceptions and frequency should be considered as, and therefore measured as, separate dimensions of the competitive anxiety response. The shared variances between the intensity and direction dimensions indicated at best a common variance of 11% throughout the pre-competition preparation period. These results are in line with the time-to-competition shared variances found across the preparation period of study one, and those observed by Hanton et al. (2000) and Jones and Hanton (2001) for times immediately before competition. Taken collectively, the results indicate the two dimensions remain relatively independent as competition approaches, lending support for their separate measurement as components of the competitive anxiety response. Further, the shared variances expressed for self-confidence intensity and directional perceptions in this study are in line with those reported in study one showing at best a common variance of 28% throughout the pre-competition preparation period. These results corroborate the argument put forward in the previous chapter questioning the exclusion of the self-confidence direction scale in previous directional perceptions research. The common variance proportions reported here in no way match the 64% observed by Jones et al. (1993), the rationale that many directional perceptions studies have cited for the removal of the self-confidence direction scale.

The shared variance proportions observed for the dimensions of intensity and frequency strengthen the argument for the inclusion of a frequency component when examining the symptoms associated with competitive anxiety (Cerin et al., 2000; Woodman & Hardy, 2001). The common variances between the two dimensions

indicated a shared variance of at best 30% throughout the pre-competition preparation period. These findings are in line with the results of study one, and support emotionalist's beliefs that the intensity and frequency of affective responses should be considered as, and therefore measured as, separate dimensions that independently contribute to stress responses (cf. Diener et al., 1991; Kardum, 1999).

Additionally, the findings produced for the reliability analysis of the modified CSAI-2 support the internal consistency of the scale. Specifically, the values reported for the intensity and direction scale ranged between .70 to .93 and .86 to .90 respectively. These values indicate internal consistency of the scales and are in line with previous research within the domain (Hanton et al., 2000; Jones & Hanton, 1996; Swain & Jones, 1996). Further, the primary rationale for calculating internal reliability scores was to provide an indication into the consistency of the frequency scale. Specifically, although the scale has been used to collect insightful results for temporal based anxiety research (i.e., study one of this thesis and Swain & Jones, 1990, 1993), no previous study has assessed the reliability of the scale. The coefficients produced here ranged between .87 to .93 indicating high internal consistency within the scale.

4.62 DIFFERENCES IN INTERPRETATION OF ANXIETY AND CONFIDENCE SYMPTOMS OVER THE PRE-COMPETITION PERIOD

The findings from the current study support and extend the differences that have previously been shown to exist between athletes with facilitative and debilitative interpretations of anxiety within their pre-competitive anxiety symptoms. Partial support was provided for hypothesis (1) for interpretational differences noted in the dimension of intensity. Specifically, debilitators displayed lower levels of self-confidence than facilitators throughout the pre-competition period. However, no group

differences were observed for cognitive and somatic anxiety intensity resulting in only partial support of the hypothesis. The realisation that facilitators experienced higher levels of self-confidence supports previous research examining the reactions of athletes with differing perceptions of anxiety. Specifically, Perry and Williams (1998) observed that debilitators experienced lower levels of trait self-confidence in comparison to athletes who interpreted their symptoms as facilitative. Further, the work of Jones and Hanton (2001) indicated that athletes who interpreted their anxiety symptoms as facilitative reported significantly more positive feeling state labels than athletes with debilitative interpretations. The positive feeling state labels included the term 'confident' which facilitators listed up to three times more often than the debilitators to describe how they were feeling immediately before competing. However, a potential criticism of the above research programmes was the limited measurement points at which competitive anxiety or athletes emotional labelling occurred. Specifically, they were concentrated in single point time frames centred around approximately 1 hour to 30 minutes before competition. The results reported in this study suggest an extension to these findings to differences that exist throughout preparation time in the week leading up to competition.

The interpretational group differences displayed for the directional perceptions dimension of competitive anxiety symptoms supported hypothesis 2. Specifically, debilitators and mixed interpreters were more negative in their interpretation of cognitive anxiety symptoms than facilitators throughout the pre-competition preparation period. Further, debilitators were more negative in their interpretation of somatic anxiety than facilitators and mixed interpreters in the time leading up to the event. These findings indicate that once athletes have interpreted their symptoms as either facilitative or debilitative towards performance that categorisation of interpretation remains in place during the time leading up to competition. However, that is not to say

that once within this classification the degree of facilitation or debilitation does not change during the preparation phases for competition[4.10]. Further, the results serve to enhance the sensitivity of directional perceptions as an appropriate between subjects factor when examining responses over time.

However, perhaps the most insightful findings for interpretational group differences relate to the frequency dimension, leading to the partial acceptance of hypothesis 3. Specifically, debilitators indicated thinking about their symptoms of cognitive anxiety for significantly more time than the facilitators throughout the pre-competition preparation period. Further, the debilitators also thought about self-confidence symptoms for significantly less time than the facilitators throughout the time leading up to the event. Dealing with the cognitive anxiety findings first, it appears that not only do debilitators view these symptoms as negative towards future performance, they actually attend to such symptoms to a far greater extent as competition nears. This type of investigation has not previously been examined within sport psychology literature, however, comparisons can be drawn with test anxiety research of Raffety et al. (1997). Their findings indicated that students who perceived their pre-exam anxiety symptoms as debilitative towards performance experienced higher intensities and frequencies of worry, distraction and tension in the week leading up to a mid-term exam.

However, the group differences across the two studies are not totally congruent. Raffety et al. (1997) indicated debilitators exhibited greater frequency of cognitive symptoms (i.e., worry and distraction) and greater frequency of experiences of somatic symptoms (i.e., tension). This study limited the differences to cognitive symptoms, no interpretational group differences were observed for the frequency with which somatic anxiety symptoms were experienced. The inconsistency between Raffety et al.'s. (1997)

[4.10] This point is emphasised through the time-to-competition effects noted in the direction dimensions, view Section 4.55 and Section 4.63

work and this study could be attributed to the task characteristics of the investigations. The role of physical tension prior to an academic exam is far removed from the role of perceptions of physical arousal or somatic symptoms prior to competitive sport. The majority of participants in this study were involved in sports of a contact based nature, therefore it is not unrealistic for athletes to be thinking about these symptoms in the time leading up to an event, irrespective of whether they regard them as positive or negative towards upcoming performance. Whereas, experiences of physical tension prior to exam performance are more likely to be viewed as, and therefore connected with debilitative rather than facilitative states (Raffety et al., 1997).

Additionally, debilitators also reported thinking about self-confidence symptoms for significantly less time than the facilitators in the time leading up to competition; a finding that supports hypothesis 3. No previous research has examined this type of response in the frequency dimension of competitive anxiety symptoms in athletic populations. Further, the test anxiety research of Raffety et al. (1997) did not include a measure for confidence in their anxiety scale. However, these findings are novel and indicate the differences experienced in self-confidence symptoms between debilitators and facilitators. Collectively, these findings for the frequency of pre-competitive symptoms again emphasise the importance of measuring separate dimensions of athletes preparation based responses (cf. Cerin et al., 2000; Swain & Jones 1993; Woodman & Hardy, 2001). Failure to include the frequency dimension in the present study would have resulted in the conclusion that debilitators and facilitators only differ in the intensity of self-confidence symptoms (apart from differences on the interpretational factor) in the time leading up to competition. The use of the frequency dimension allows a more sensitive fine grained measurement approach to the assessment of pre-competitive states and allows these important distinctions to be realised (cf. Cerin et al., 2000; Raffety et al., 1997; Woodman & Hardy, 2001).

To summarise, it appears that athletes who interpret their pre-competitive anxiety symptoms as debilitative towards performance differ in their symptom intensity, directional perceptions and frequency of several competitive anxiety variables than athletes who interpret the symptoms as facilitative. Not only do the athletes with debilitative interpretations view their cognitive and somatic symptoms as negative towards performance throughout the week preceding competition, they experience lower levels (intensities) of self-confidence and think about these confidence symptoms for less time during the preparation time for competition. Further, the debilitators also experience higher frequencies of cognitive anxiety symptoms during the time leading up to competition. This implies that the two groups of performers may use different types of psychological approaches to modify their symptom responses as they prepare for competition. These findings are of particular relevance to the practising sport psychologist regarding intervention structure during the time leading up to competition. Knowledge of the psychological processes utilised by the facilitators during the time leading up to competition in comparison to those used by the debilitators may realise a psychological skills programme to aid debilitative athletes' preparation for competition.

4.63 TIME-TO-COMPETITION CHANGES IN ANXIETY AND CONFIDENCE SYMPTOMS OVER THE PRE-COMPETITION PERIOD

In addition to detailing the differences in anxiety and confidence symptoms between debilitators, facilitators and individuals with mixed interpretations when preparing for competition, this study also tracked the temporal changes across the dimensions of intensity, directional perceptions and frequency. The lack of significant interactions within the data suggested that the three interpretational groups responded to competitive stress with similar reactions over time. This similarity resulted in the collapsing of data across all groups for the change-over-time analysis. General

observation for time-to-competition effects supported proposals emphasising the need to examine responses as variables that have the potential to change-over-time (cf. Cerin et al., 2000, Lazarus, 1999, 2000; Woodman & Hardy, 2001). The findings for the intensity dimension indicated time-to-competition effects within cognitive anxiety, somatic anxiety and self-confidence symptoms. Specifically, cognitive anxiety intensity increased between 2 days to 1 day and 1 day to 1 hour before competition. These findings were not wholly consistent with hypothesis (4) or Martens et al.'s. (1990) predictions for MAT and the lack of change-over-time effects expected for cognitive anxiety. However, the results supported the findings obtained in study one where cognitive anxiety intensities were shown to rise in the time leading up to competition. Further, additional temporal-based research has observed a rise in cognitive anxiety intensity from within 2 days before competition (e.g., Campbell & Jones, 1995, 1997; Davids & Gill, 1995; Perkins & Williams, 1994; Slaughter et al., 1994; Swain & Jones, 1990, 1992, 1993). However, it should be noted that the earliest increase in cognitive anxiety in the above listed studies was 1 day before competition in comparison to the 2 day stage noted here on the CSAI-2. This earlier fluctuation serves to support the process orientated view of stress responses advocated by Cerin et al. (2000) and Lazarus (1999, 2000).

The findings for somatic anxiety intensity tended to follow the proposed pattern outlined in MAT and hypothesis 4. Specifically, somatic anxiety symptoms highlighted a rapid increase in levels on the day of the competition. This finding is congruent with several previous intensity based temporal research designs (see Table 2.3). One possible confounding result was the increase in somatic anxiety levels from 7 days to 2 days pre-competition. Although this type of pattern has been realised in previous time-to-competition research (e.g., Swain & Jones, 1992), it has not normally been noted within the body of literature. In Swain and Jones' (1992) research, the finding was observed in

the context of achievement motivation theory. In short, low competitive orientated individuals showed a rise in somatic anxiety in comparison to no rise from a high competitive orientation group. No competitive orientation data were collected within the present study, therefore comparison is not possible. However, a possible reason for the rise in somatic symptoms in this study could be the group training times within the temporal preparation phase. A number of athletes within the study, especially those derived from field hockey, rugby union, and soccer participated in training sessions two days prior to competition. The data collected in and around such times may have influenced the degree of physical symptoms the performers were experiencing from the training environment, hence the rise in levels between the two aforementioned time periods. A point of consideration for future time-to-event research.

Self-confidence intensities tended to concur with MAT proposals and hypothesis 4 by remaining stable throughout the pre-competition preparation period. The exception to this was a lowering in self-confidence levels between 1 day and 1 hour before competition. This finding replicates the changes in self-confidence intensity observed in study one, and supports previous literature within the domain (e.g., Campbell & Jones, 1997; Davids & Gill, 1995; Swain & Jones, 1990, 1992). Albeit slightly speculative, the role of anxiety interpretation on self-confidence levels could be of importance when explaining this finding. Although not strong enough to elicit an interaction effect, the role of interpretation on self-confidence intensity has previously been alluded to in this discussion via the main effect noted throughout the pre-competition period (cf. Jones & Hanton, 2001; Perry & Williams, 1998). Perhaps the number of debilitators within the sample contributed to the lowering of self confidence as competition neared, albeit an insufficient enough contribution to cause a statistical interaction.

Change-over-time effects were obtained in the direction dimension suggesting that interpretations of symptoms do fluctuate as competition approaches, a result that

conflicts with hypothesis 5. Specifically, both the interpretation of cognitive and somatic anxiety became more negative (or less positive) between 1 day and 1 hour pre-competition. These results contradict the work of Wiggins (1998) and the findings of study one of this thesis where directional perceptions of anxiety did not vary as a function of time-to-competition. This led to the conclusion that once athletes had appraised their anxiety symptoms as positive or negative towards performance it appeared that those appraisals remained relatively unchanged in the time leading up to competition. Perhaps the most noticeable difference between the work of Wiggins (1998), study one of the thesis and the current study related to sample compilation. Wiggins (1998) and study one used an overall facilitative sample, where as a range of facilitators, debilitators and mixed interpreters were incorporated within this investigation. Intuitively, following the results of Wiggins (1998), one might have expected an interaction effect to emerge from the present study. It would not have been unexpected for facilitators to remain constant in their interpretation over time, or debilitators and mixed interpreters to become more negative as competition approached. However, although both debilitators and mixed interpreters became more negative at the state-level for the symptoms of anxiety they viewed as debilitating, the facilitators also reported becoming less positive in their interpretation of both cognitive and somatic anxiety.

Change-over-time findings in the frequency dimension indicated cognitive and somatic anxiety symptoms displayed greater variability in response change in comparison to fluctuations noted in the intensity dimension. These results support hypothesis (6), the findings of study one, and the limited previous research that has examined the frequency dimension (Swain & Jones, 1990, 1993). Specifically, frequency of cognitive anxiety symptoms increased between 7 days and 1 day, and 1 day and 1 hour before competition. This furthers the notion that the frequency

dimension is more sensitive to changes over time than the intensity dimension. This conclusion is supplemented by the results emerging for somatic frequency. In short, the amount of time participant's spent experiencing somatic anxiety symptoms increased through each successive stage of the pre-competition period. This greater change over time sensitivity in the frequency dimension supports previous research within sport psychology and further emphasises the importance of measuring this dimension of the response (cf. Swain & Jones, 1993). In light of MAT predictions for cognitive anxiety intensity (i.e., that they remain unchanged in the pre-competition period), these time sensitive changes in frequency data are of particular interest. Specifically, they bring into question the stability of cognitive anxiety as a construct over time (cf. Swain & Jones, 1993). Possible explanations for this greater sensitivity could rest with an athletes' ability to distinguish between the two dimensions of intensity and frequency. Emotional affect research in general psychology has provided evidence that individuals are more able to accurately estimate and recall frequency information in comparison to intensity information of the same emotional response (Diener et al., 1991; Kardum, 1999; Thomas & Diener, 1990). Their findings suggested that emotional intensity estimates are biased by frequency of the response due to the fact that humans are more biologically prepared to store and review frequency based information. Diener et al. (1990) suggested that there is no natural system by which individuals can encode, define or label affect intensity. These researchers argued that affect frequency information can be encoded because people know whether they are anxious or calm, joyful or fearful, or happy or unhappy, concluding that no such discrete event exists on which to base the recall of affect intensity. The results emanating from this study, and study one, reinforce the notion of including a frequency dimension when examining responses to competitive stress. In view of the beliefs held in emotional psychology, it is rather surprising that further investigation on the frequency dimension has not been

forthcoming in sport psychology. The author believes that the frequency dimension should be integrated into future studies, especially those considering responses as temporal events that have the potential to change during the preparation phases for competition.

4.7 SUMMARY

In summary, the present study has demonstrated that athletes with different perceptions of their competitive anxiety symptoms (facilitative, debilitative, and mixed) differ in their intensity, direction and frequency of anxiety and confidence symptoms throughout a 1 week pre-competition preparation period. Specifically, the debilitators not only interpreted their pre-competitive cognitive and somatic anxiety as negative towards performance, they thought about their cognitive anxiety symptoms more frequently, experienced lower intensity levels of self-confidence and thought about their self-confidence symptoms less frequently during the preparation time for competition than athletes facilitated by their pre-competitive anxiety symptoms.

Regarding time-to-competition effects, it appears that directional perceptions of anxiety symptoms had no effect on change-over-time profiles of the athletes across the symptoms of competitive state anxiety. No interactions were observed in the analysis indicating that although symptoms may have started out at differing points on the intensity, direction or frequency scales (indicated through the realisation of main effects), debilitators, facilitators and mixed interpreters symptoms fluctuated over time in a similar pattern (i.e., increases or decreases in symptoms were consistent or parallel over time across the three groups). Therefore, this study indicated anxiety intensities and frequencies rose as competition approached, and that negative (or less positive) perceptions of anxiety increased at times close to competition. Additionally, the time-to-competition variability noted in the frequency dimension was greater than that observed

in the intensity dimension suggesting it is more sensitive to changes-over-time. These findings support the process orientated view of stress responses, and in combination with the findings of study one advocate the need to consider responses as temporal events that have the potential to change during competition preparation times (cf. Cerin et al., 2000; Lazarus, 1999, 2000). Further, in view of the interesting results obtained in this study, study one of the research programme and the views espoused by emotionalists there is a need to address the relative lack of research attention devoted to frequency dimensions of competitive stress.

The implications of these findings suggest that facilitators and debilitators are responding during the stressful process of preparation for competition with differing intensities, directions and frequencies of anxiety and confidence symptoms. However, although this study can identify through quantitative means that these differences exist, it can not provide an insight into the mechanisms which underpin these differences. Perhaps, the debilitators and facilitators are utilising different approaches to their psychological preparation in the time leading up to competitive events. Knowledge of the psychological processes used by the facilitators to help them maintain facilitative perceptions of cognitive and somatic anxiety, experience greater intensities and frequencies of self-confidence symptoms and experience lower frequencies of cognitive anxiety would have undoubted relevance to the practising sport psychologist. Further, related to the change-over-time patterns observed in the dimensions of competitive anxiety, information regarding the triggers that prompt the changes in symptom intensity, direction and frequency would assist the practitioner in structuring intervention programmes designed to optimise psychological preparation in the time leading up to competition.

CHAPTER V

STUDY THREE

A QUALITATIVE INVESTIGATION OF THE SYMPTOMS EXPERIENCED, AND STRATEGIES USED BY FACILITATORS AND DEBILITATORS IN THE PREPARATION TIME PRIOR TO COMPETITION

5.1 INTRODUCTION

Study one and two highlighted the importance of considering the competitive anxiety dimensions of intensity, directional perceptions and frequency as temporal processes that have the potential to change over time (cf. Cerin et al., 2000; Lazarus, 1999, 2000). Further, the results of study two indicated that directional perceptions maybe more sensitive than skill level as a moderating variable over the intensity, direction and frequency of symptom responses during the preparation time for competition. Specifically, in addition to interpreting their pre-competition anxiety symptoms as negative towards performance, debilitators experienced lower levels of self-confidence, thought about cognitive anxiety symptoms for more time, and thought about self-confidence symptoms for less time than facilitators in the week leading up to competition. However, neither the design of study two, nor the data produced provide any foundation as to why these differences occurred.

Therefore, the main aim of study three was to examine the preparation techniques of facilitators and debilitators during the preparation time for competition and ascertain the processes and mechanisms which underpinned the group differences

noted in study two. In order to address this research question, a combination of qualitative methods were employed followed by inductive analytical procedures. Specifically, the Experience Sampling Method (ESM; Cerin et al., 2001) stimulated the recording of performers positive and negative 'thoughts and feelings' during the preparation time for competition in six facilitators and five debilitators. Subsequently, retrospective semi-structured interviews using the ESM data to aid recall explored the debilitators and facilitators use and timing of pre-competition psychological strategies.

This chapter reports the study's findings and is structured in a similar way to the previous two studies. However, due to the utilisation of a qualitative mixed method approach, the literature review introduces the notion of qualitative research and the techniques of semi-structured interviews and ESM. The review then focuses on the few studies that have used such qualitative methods within competitive anxiety symptom research. The method section introduces the participant selection criteria and the procedures incorporated into the ESM and semi-structured interview process. The qualitative data analysis procedures are then described along with the findings of the study. Finally, the discussion section outlines the applied practical implications of the findings.

5.2 REVIEW OF LITERATURE

5.21 QUALITATIVE RESEARCH IN SPORT PSYCHOLOGY

Over the last ten years, research in sport psychology has witnessed an increase in the volume of qualitative inquiry (Biddle, Markland, Gilbourne, Chatzisarantis, & Sparkes, 2001). Although this work has covered methods such as workshops (e.g., Partington & Orlick, 1991), case studies (e.g., Gilbourne, Taylor, Downie, & Newton, 1996), focus groups (e.g., Jones, Hanton & Connaughton, 2002), and ethnographic designs (e.g., Faulkner & Sparks, 1999), the dominant qualitative approach has been the

retrospective semi-structured interview combined with some form of content analysis (cf. Biddle et al., 2001; Cotê, Salmela, Baria, & Russell, 1993).

5.22 RETROSPECTIVE SEMI-STRUCTURED INTERVIEWS

Retrospective semi-structured interviews are suggested to offer several advantages to the researcher. Patton (2002) noted that interviews allow researchers to explore thoughts, feelings, intentions or behaviours that took place at some previous point in time enabling the researcher to enter the participant's environment and view his or her experiences through their perspective. Facets of inquiry that directly relate to the research question of this study. Semi-structured interviews are proposed to offer this same richness of data, but provide the researcher with greater systematic control of the interview setting through the use of an interview guide (Patton, 2002). The guide is produced as a framework to the interview ensuring that the studies basic lines of inquiry are pursued with each separate interviewee. That is not to say however, that each interview is structured in exactly the same fashion; the guide allows the researcher to probe and explore areas within a framework so that the interviewer remains free to build conversation on a particular area, with a particular participant, dependent on their experience of the subject matter (Patton, 2002). Further, the order of the interview guide remains flexible within a semi-structured approach, realising the scenario that the interview can flow from one topic to another based on the experiences of the participant. This point is crucial in the opinion of several qualitative researchers who suggest that the application of a rigid guide reduces the likelihood of the interview capturing the athlete's true perspective of the phenomena under investigation (Biddle et al., 2001; Cotê et al., 1993; Cotê, Salmela, & Russell, 1995; Dale, 1996).

However, there are weaknesses attached to semi-structured interview procedures. For example, Biddle et al. (2001) indicated that researchers should attempt

to demonstrate that 'trustworthiness' criteria are adhered to within their investigations. Citing the views of Hardy et al. (1996), Biddle et al. (2001) noted that researchers engaging in interview designs need to demonstrate 'credibility' as to their experience as a qualitative researcher. Additionally, issues relating to recall accuracy of information that may have taken place previously in the athlete's career remains an issue when using retrospective designs (cf. Hanton & Jones, 1999a; Patton, 2002). Several techniques including 'binding' and the development of 'involvement progression questionnaires' have been developed and applied to sport in an attempt to overcome these issues (e.g., Bloom, 1985; Scanlan, Ravizza, & Stein, 1989). Involvement progression questionnaires are usually developed to help bind performer's to a certain time frame of their career. For example, the qualitative study of Hanton and Jones (1999a) utilised an involvement progression questionnaire to identify the phases of a swimmer's career and determine the amount of time each swimmer spent in each phase. These types of questionnaire are usually completed by the interviewee prior to the interview date, discussed for clarity during the beginning phase of the interview, and utilised throughout the interview to help the participant with accurate recall. Therefore, although this type of procedure undoubtedly helps recall in the interview, the process still suffers from potential recall problems when the participant originally completes the questionnaire. A procedure that has been utilised to avoid these potential problems is the Experience Sampling Method (ESM).

5.23 ESM: AN APPROACH TO AID RETROSPECTIVE RECALL

ESM has been employed to aid recall in the fields of general psychology, industrial psychology, organisational psychology and behavioural medicine (Csikszentmihalyi & Csikszentmihalyi, 1993; Van Eck, Nicolson & Berkhof, 1998; Voelkl & Nicholson, 1992) and has more recently been applied to the study of emotions

in sport (Cerin et al., 2001). ESM involves the study of an individual's everyday experiences and behaviours within their indigenous environment related to the area of study of the researcher (Hormuth, 1986). Participant's usually carry beepers or pagers for a number of days which when randomly signalled act as a cue for the participant to record and describe their emotional state or behavioural responses (cf. Cerin et al., 2001). The advantages of ESM include the minimisation of memory effects and potential bias in the recall of the individual's experienced emotions (Larson & Csikszentmihalyi, 1983). Further, ESM has been suggested to provide a better method to examine temporal and dynamic psychological phenomena such as responses to the process of competitive stress (Hormuth, 1986).

Data created through ESM serve two functions; first, they operate as significant findings in their own right giving in-depth information into the changes that occur in the participant's responses over time (Alliger & Williams, 1993; Gauvin & Szabo, 1992; Van Eck et al., 1998). However, and of particular relevance to this study, data from ESM can be used to underpin the probes used in retrospective interviews aiding memory recall in interview settings. Csikszentmihalyi and Csikszentmihalyi (1993) adopted this approach when examining family influences on the development of giftedness in adolescents. Specifically, the researchers used a mixed ESM and qualitative semi-structured interview approach to examine the role of creative family motivation for the adolescent. Further, Voelkl and Nicholson (1992) adopted a similar mixed ESM and qualitative interview approach when examining elderly patient's perceptions of daily life. Elderly patient's reported their daily activity several times a day on the receipt of a random ESM signal over a 4 to 6 day period. Subsequently, the participants were interviewed on their 'perceptions of daily life' using triggers and probes derived from the ESM data to help aid recall in the interview situation. However, although this type of mixed ESM and interview approach has been used in other areas

of psychology, no research was found employing the method in sport psychology. In fact, the use of ESM in sport is limited to one recent research paper by Cerin et al. (2001) when studying the temporal nature of pre-competition emotions.

The focus of Cerin et al.'s. (2001) paper was to examine the appropriateness of ESM for analysing the temporal patterns of a conglomerate of emotions in competing athletes. Specifically, the researchers compared the accuracy of ESM, retrospective recall, and repeated measure assessments for examination of competitive emotions in the week leading up to competition. The rationale for the comparison was to answer concerns that the ESM may artificially inflate pre-competitive emotion intensity due to the number of signals and frequent measurement of emotions when using such methods. Cerin et al. (2001) concluded that the ESM was an acceptable measurement method for analysing pre-competitive emotion responses over time, indicating that it was more accurate than retrospective recall assessments due to forgetting effects with the recall based approach. Therefore, it appears that the ESM method is an accurate approach for the assessment of temporal responses in competitive sport over and above methods that rely on pure retrospective recall. This study will attempt to advance the use of the ESM into a mixed method qualitative approach to aid recall in an interview environment.

5.24 SEMI-STRUCTURED INTERVIEW RESEARCH IN THE DIMENSIONS OF COMPETITIVE ANXIETY

Two recent studies have examined the competitive anxiety dimensions of intensity and direction using a qualitative semi-structured interview approach (i.e., Hanton & Jones, 1999a; Hanton & Conaughton, 2002). However, only one research paper has qualitatively assessed the dimensions of intensity, directional perceptions and frequency; namely, the study of Hanton et al. (2002). Hanton and Jones (1999a) examined how elite male swimmers had acquired, through their career, the cognitive

skills and strategies that allowed them to interpret their pre-race thoughts and feelings as facilitative towards performance. Using semi-structured interviews and content analysis, it was established that elite swimmers experienced negative experiences associated with their pre-race anxiety when they were young performers, but had, over time, learned to interpret these anxieties as positive. Self-education, and advice from experienced swimmers and significant others (i.e., coaches/parents) were stated as the mechanisms through which the participants had, over their career, developed and refined pre-race routines to aid facilitative interpretations. The psychological skills which emerged as particularly helpful for the maintenance of facilitative interpretations by the elite swimmers included the use of goal setting, imagery, and self-talk.

The work of Hanton and Connaughton (2002) examined the role of 'control' from Jones' (1995) model of facilitative and debilitative competitive anxiety (see Figure 2.3) in a group of elite and sub-elite swimmers. Using semi-structured interviews and an extension of content analysis called causal networks, these researchers noted that elite and sub-elite swimmers interpreted their pre-race symptoms as debilitative or facilitative based on their perception of control over the symptoms, supporting Jones' (1995) model. Interestingly, Hanton and Connaughton (2002) noted the elite group reported a unique attribution. Specifically, elite athletes were able to trigger psychological strategies that resulted in the re-interpretation of symptoms that were originally perceived as uncontrollable and debilitative, into symptoms that were perceived as controllable and facilitative. Specifically, these strategies included thought rationalisation and relaxation, allowing the swimmers to overcome the negative symptoms, block out negative thoughts and images and replace them with positive ones.

However, although the findings of Hanton and Jones (1999a) and Hanton and Connaughton (2002) are insightful, they suffer weaknesses in relation to the main tenets of this thesis. First, they did not allude to a frequency dimension of the response.

Additionally, they did not evaluate symptom responses as temporal processes during the preparation time leading up to competition. The researchers constructed their interview guides to examine athlete's responses at times just prior to competition. Recently, Hanton et al. (2002) addressed these discrepancies by examining the temporal patterning of competitive anxiety responses across the dimensions of intensity, direction and frequency over a two day pre-competition period.

Using a sample of nine elite athletes Hanton et al. (2002) indicated that symptoms of anxiety across the dimensions of intensity, direction and frequency did change as competition approached, results which gave qualitative support to the previous quantitative research body. Further, Hanton et al. (2002) noted that the strategies athletes used to maintain facilitative interpretations, and avoid negative symptom increases, included mental rehearsal, thought-stopping and positive self-talk. However, although this qualitative work did consider preparation for competition as a temporal event, and included reference to all three dimensions of intensity, direction and frequency, there remain limitations in the application of the findings. First, the population used in the research included only facilitators. The results of study two in this research programme, and the different reactions noted in facilitators and debilitators, suggest the findings of Hanton et al. (1999a) may have limited generalisability. Further, and most poignant to the applied sport psychologist, specific information about performer's implementation of psychological strategies has tended to remain superficial. In fact, this limitation could be levelled at all three recent qualitative studies (i.e., Hanton & Connaughton, 2002; Hanton & Jones, 1999a; Hanton et al., 2002). Although these studies have identified several strategies that help maintain facilitative interpretations, information regarding 'how, when, where and why' the performers initiated these skills has remained elusive. For example, Hanton and Connaughton (2002) suggested thought rationalisation was a process used by elite

swimmers to re-interpret debilitative pre-performance symptoms, but provided no evidence of the mechanisms through which this was achieved. The temporal work of Hanton et al. (2002) suggested athletes used mental rehearsal, thought-stopping and self-talk to maintain symptom interpretations and avoid negative symptom increases as competition neared, but gave no insight into when, where or why the performers used such psychological skills as competition moved closer. In defence of these studies, this type of question did not form the aim of investigation. However, this type of information would prove invaluable to the practitioner wishing to design and structure intervention programmes during the preparation time for competition.

5.3 AIMS OF STUDY THREE

Study three will aim to examine the psychological approaches of athletes with debilitative and facilitative interpretations in the week leading up to competition. Specifically, the findings of study two indicated debilitators and facilitators experience different intensities, directional perceptions and frequencies of competitive anxiety symptoms when preparing for competition. However, no research has examined the mechanisms underpinning these differences as time progresses towards the event. Further, study one and two indicated that competitive anxiety symptoms across the three dimensions do change as competition nears. This study will attempt to explore the triggers which stimulate these symptom changes as competition moves closer. In an attempt to further previous qualitative research, the study will pay particular attention to the strategies used by athletes with differing interpretations that enhance positive pre-performance symptoms, and/or protect or regulate negative pre-performance symptoms throughout the week leading up to competition. Due to the exploratory nature of the research question, and the methodology employed, no hypotheses will be created for this study.

5.4 METHOD

5.41 PARTICIPANT SELECTION CRITERIA

Sixteen elite female field hockey players competing in the English Hockey Leagues' National Premier Division were contacted for potential involvement in the study. In line with the selection process in study two, potential participants were pre-screened at the trait and state level to ensure consistent interpretation of cognitive and somatic anxiety as either facilitative or debilitative towards performance. Specifically, potential participants were issued with the CTAI-2 (Albrecht & Feltz, 1987) modified to include the dimensions of intensity and direction (Jones & Swain, 1995), and the CSAI-2 (Martens et al., 1990) modified to include the dimensions of intensity and direction (Jones & Swain, 1992)[5.1]. The performers completed the modified CTAI-2 during the initial contact session and were asked to complete the modified CSAI-2 prior to their next National Premier League fixture. A summary of the scores for the CSAI-2 and CTAI-2 are presented in Table 5.1. Review of this data indicates that six performers had consistent trait-state facilitative profiles where as five performers had consistent trait-state debilitative profiles. The remaining five performers either displayed a mixed trait-state facilitative-debilitative profile or interpreted cognitive anxiety as debilitative and somatic anxiety as facilitative towards performance; these participants were not included in the ESM and interview procedures of the study.

5.411 PARTICIPANTS

Eleven participants, consisting of six 'facilitators' and five 'debilitators' satisfied the selection criteria for the study. The participants were all female field hockey players currently competing in the English Hockey League National Premier Division with

[5.1] A full description of the modified CSAI-2 and CTAI-2 can be viewed in Chapter IV Section 4.42.

Table (5.1) Modified CSAI-2 and CTAI-2 Participant Selection Scores

	Participant	CTAI-2				CSAI-2			
		CA-I	SA-I	CA-D	SA-D	CA-I	SA-I	CA-D	SA-D
Facilitators	F1	19	18	+13	+4	24	19	+5	+8
	F2	28	18	+5	+8	30	24	+5	+11
	F3	20	18	+13	+6	17	23	+12	+8
	F4	18	13	+3	+16	21	32	+9	+11
	F5	16	17	+3	+5	15	19	+6	+4
	F6	19	18	+4	+10	27	20	+3	+5
Debilitators	D1	24	14	-15	-6	17	18	-6	-7
	D2	31	20	-9	-4	27	18	-6	-14
	D3	22	12	-7	-3	24	19	-11	-4
	D4	24	28	-13	-4	19	20	-15	-8
	D5	28	14	-10	-3	25	24	-8	-5
Mixed response	1	17	13	+12	-4	22	25	+7	-2
	2	17	21	+20	+14	18	19	-7	+9
	3	21	13	-8	+4	24	17	-4	+9
	4	19	16	-5	12	20	16	-2	+9
	5	14	24	-1	+8	18	25	+3	+6

seven of the players having competed internationally. The age range of the players was 18 to 28 years (*M* 23.09, *SD* = 3.83).

5.42 PROCEDURES

In an attempt to maximise accuracy of recall in the qualitative study and provide probes that were salient to each performer, the procedures section was separated into the ESM and the retrospective semi-structured interview (cf. Cerin et al., 2001; Csikszentmihalyi & Csikszentmihalyi, 1993; Voelkl & Nicholson, 1992).

5.420 THE ESM: 'THOUGHTS AND FEELINGS'

5.4201 Instrumentation

5.42011 Pagers and Message Control

ESM data collection was completed by the participants in line with the methods recently adapted to sport psychology by Cerin et al. (2001). Each performer carried with them an Ericsson Alphanumeric Pager (model number PTF 118) set to silent vibrate mode for delivery of the message which acted as the signal to complete the 'thoughts and feelings' booklet. Pre-programmed signals were sent to each pager through a personal computer and modem using the AvantPager 32 (version 4.00) pager software to remove caller error when attempting to dial the pager numbers.

5.42012 'Thoughts and Feelings' Forms[5.2]

Participants recorded their pre-performance thoughts and feelings in the 'thoughts and feelings' booklet. Specifically, this booklet was based on the idiosyncratic affective feeling state labelling work of Hanin (1997) and Jones and Hanton (2001). The participants were provided with a composite list of thoughts and feelings based on the findings of these research programmes. However, although the performers were asked

[5.2] A full copy of the 'Thoughts and Feelings' booklet can be found in Appendix 5.1

to utilise this list, they were advised that it was not exhaustive, and were encouraged to record any pre-performance labels not included on the list. Once the participant had recorded a pre-performance label, they stated whether they regarded the thought or feeling as positive or negative towards their upcoming performance and recorded the percentage of time they had experienced the thought or feeling since the last time they were signalled. Additionally, in an attempt to elicit information on the mechanisms underpinning the responses, performers were also asked to describe what caused them to interpret the thought or feeling as positive or negative towards performance, and what triggered the thought or feeling to occur.

5.4202 Procedure

Unlike studies one and two, ethical clearance for ESM procedures were not covered in the 'Pre Approved Minor Procedures' of the Sheffield Hallam University School of Sport and Leisure Management Ethics Committee Guidelines. Therefore, ethical approval for the procedure was applied for and granted by the committee (view Appendix 5.2). The first meeting with the participants formed a familiarisation session during which participants were briefed on the workings of the pager and introduced to the structure of the thoughts and feelings booklet. Formal written consent to the procedures was also obtained. Participants were informed that they would be paged randomly, once a day between the hours of 9am and 8pm in the six days leading up to a competitive English Hockey League Premier League Fixture. Messages from the researcher were coded in relation to the pre-competition time period of form completion. For example, '6 days form 1' equated to the thoughts and feelings form for the six days before competition phase. Participants were asked to note their thoughts and feelings in the booklet as soon as possible after receiving the signal. Finally,

performers were informed the no signal would be sent on the day of competition and that they should complete the thoughts and feelings booklet 1 hour before competition.

5.421 THE SEMI-STRUCTURED INTERVIEW

5.4211 Instrumentation

5.42111 The Interview Guide[5.3]

In line with the recommendations of Patton (2002), the interview guide was created with reference to previous qualitative studies on competitive anxiety research. Specifically, the guides of Hanton and Connaughton (2002); Hanton and Jones (1999a) and Hanton et al. (2002) helped inform the structure and content of the interview guide constructed for this investigation.

The interview guide was pilot tested on four female competitive field hockey performers of national status (two facilitators and two debilitators), following which modifications were made which refined the guide for use in the main interviews of the study. This also allowed the opportunity for the interviewer to practice the technique of interviewing. Further, the interviewer also completed two post graduate M.Sc. Qualitative Research Methods modules to enhance his 'credibility' and 'experience' as a qualitative researcher (cf. Biddle et al., 2001; Hardy et al., 1996).

Due to the in-depth scope of the interview, and the need to cover a wide range of topics, a series of 'interview checklists' were created for use in the interview setting. These were included within the interview guide and acted as points of reference for the interviewer ensuring that the full range of topics was covered with each separate performer (view Appendix 5.3).

The interview guide was separated into six sections to cover three separate phases of the interview (view Figure 5.1 for a schematic diagram of the interview).

[5.3] View Appendix 5.3 for a copy of the interview guide.

Section one (Phase One), established rapport with the performer, collected general information from each participant and introduced the performer to the structure and content of the interview. Additionally, this section included a review of the 'thoughts and feelings' the participant had recorded in the ESM phase of the data collection. Section two (Phase One), examined the participants performance preparation in the week leading up to competition with a view to facilitating recall and binding the interviewee to the context of the study (Scanlan et al., 1989).

Sections three, four and five (Phase Two), formed the main body of the interview and explored the intensity, direction and frequency of symptoms in the time leading up to competition. To simplify this process, both for the participant and for subsequent data analysis, the structure of sections three, four and five followed a similar pattern. Specifically, each section was broken down into two sub-sections, the first dealt with the performers pre-competition thoughts, and the second dealt with the performers pre-competition feelings. The use of 'thoughts' and 'feelings' was considered an important terminology point for the participant. Essentially, these terms were used to simplify the interpretation of the constructs of cognitive anxiety symptoms and somatic by the participant (cf. Jones & Hanton, 2001). Therefore, section three discussed the thoughts and feelings each performer experienced in the time leading up to competition, whether the level (i.e., intensity) of these thoughts and feelings changed as competition moved closer and explored any strategies the performers used to protect against or regulate negative pre-performance symptoms and/or enhance positive pre-performance symptoms in the week leading up to competition.

Section four asked whether the performers interpreted their pre-competition thoughts and feelings as positive or negative towards performance, whether this interpretation changed as competition moved closer, and examined whether the performers used any strategies to maintain facilitative interpretations or overcome

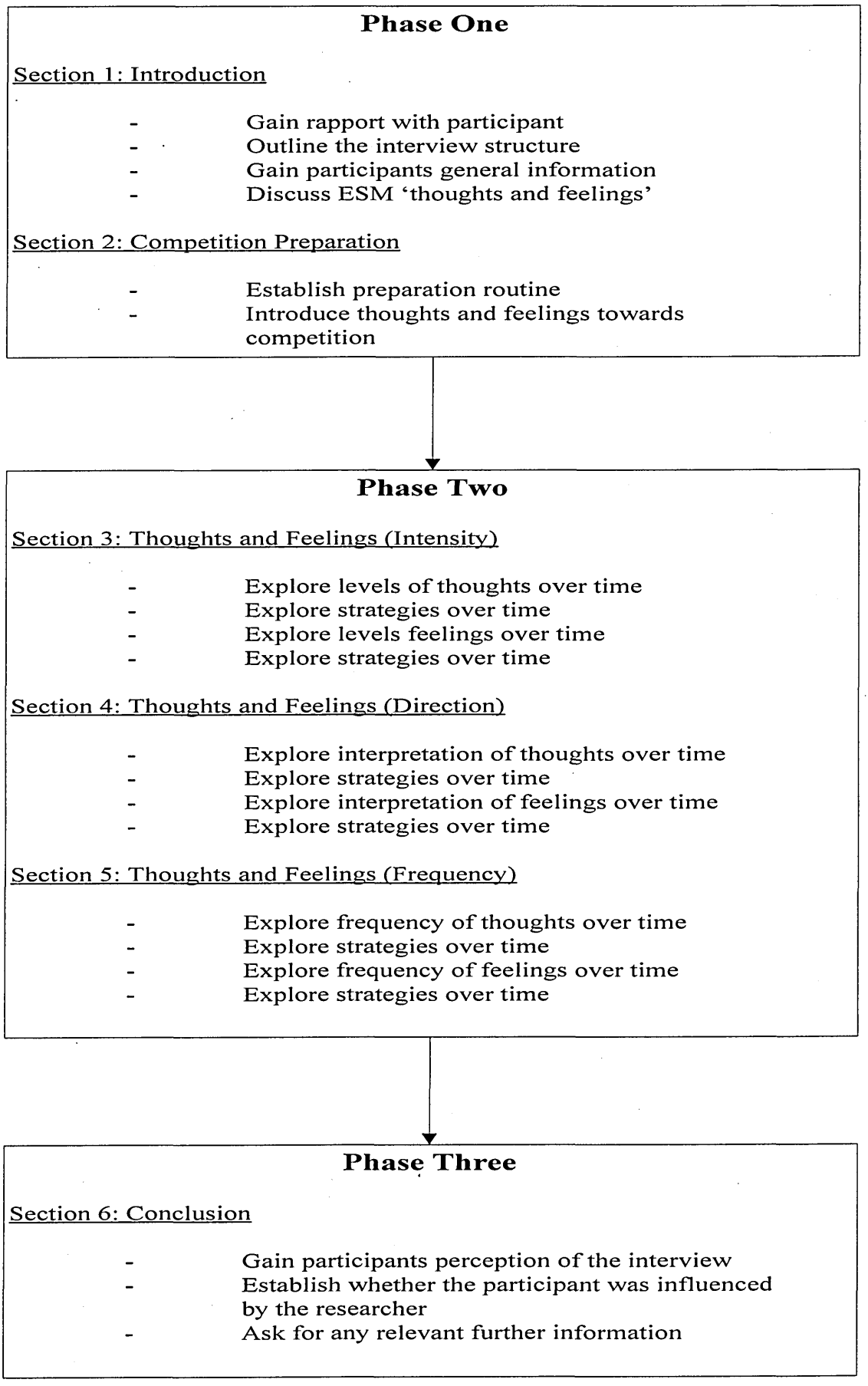

Figure (5.1) Summary of the Interview Procedure

debilitative interpretations during the preparation time for competition. Section five discussed whether the frequency with which performers experienced their pre-competitive symptoms changed as competition moved closer, and explored whether the performers employed any strategies to maintain or enhance the frequency of positive pre-performance symptoms and/or protect or regulate against negative pre-performance symptom occurrence during the preparation time for competition. Finally, section six (Phase Three) of the guide concluded the interview and explored the performer's perception of the interview process.

5.4212 Procedure

In order to familiarise the participant with the process of the interview, each performer was sent a copy of the interview guide and a summary schedule of the interview a week prior to the interview date (cf. Hanton and Connaughton, 2002; Hanton et al., 2002). All the interviews were conducted face-to-face, away from the competitive environment, in the performer's home to ensure the participant felt comfortable with their surroundings (cf. Patton, 2002). Prior to the start of the interview, participants were familiarised with the structure of the session, and any queries regarding the guide were addressed. The interviews lasted between 60 and 90 minutes, were tape-recorded in their entirety, and were subsequently transcribed verbatim into Microsoft Word Office XP yielding 198 pages of single-spaced typed text. Two copies of exemplar transcripts (one 'facilitator' and one 'debilitator') are presented in Appendix 5.4.

5.4213 Interviewer Bias

The potential for interview bias was addressed following the guidelines employed in recent qualitative semi-structured interview research (e.g., Hanton et al.,

2002; Hanton & Jones, 1999a). First, the development of the guide and the associated checklists gave structure to the interview ensuring each participant was introduced to the same areas. Second, all the interviews were conducted by the same researcher (i.e., the author) ensuring consistency across the participant group. Further, as part of the overall research programme this researcher completed two post graduate M.Sc. Qualitative Research Methods modules to enhance the 'credibility' and 'experience' as a qualitative researcher (cf. Biddle et al., 2001; Hardy et al., 1996). Third, pilot interviews were conducted under the guidance of a second researcher experienced in interview settings where feedback was given on the interviewer's approach. Fourth, following transcription, all participants were sent a copy of their interview for verification that it was a true account of their pre-competition experiences. Finally, individual biases in the data analysis procedure were controlled by using a three way consensus validation at each stage of the data analysis procedure.

5.3 DATA ANALYSIS

Several eminent qualitative researchers have noted that there is no absolute way to analyse qualitative data (e.g., Miles & Huberman, 1994; Patton, 2002). However, the most prominent technique used in sport psychology research has been some form of 'inductive content analysis' (cf. Biddle et al., 2001). Inductive content analysis allows dimensions, theories and relationships to emerge from raw transcript data without proposing in advance what these important areas will be. This compares to deductive content analysis through which the researcher specifies the main variables and statement of specific research hypotheses before the data has been collected (Patton, 2002). Recent sport psychology research has tended to adopt a combined inductive-deductive approach where dimensions, theories or relationships are allowed to emerge from the raw data inductively, but are subsequently verified through deductive methods ensuring

they exist in the raw transcripts (e.g., Hanton, 1999a). However, several researchers have suggested content analysis is an essentially descriptive process that does not allow causal linkages between processes and outcomes to be elucidated (Hanton & Jones 1999a; Miles & Huberman, 1994; Patton, 2002). In an attempt to overcome such issues, several recent sport psychology studies (e.g., Hanton & Connoughton, 2002; Hanton et al., 2002) have adopted 'causal networks' as an analysis technique (Miles & Huberman, 1994).

When defining a 'casual network', Miles and Huberman (1994) suggested that they:

> '...display the most important independent and dependent variables in the field of study (shown by boxes) and the relationships amongst them (shown by arrows). The plot of these relationships is *directional*, rather than solely correlational. It is assumed that some factors exert an influence on others: X brings Y into being or makes Y larger or smaller. A causal network, to be useful, must have associated analytical text describing the meaning of the connections among factors.' (pp. 153).

Therefore, causal networks not only give a visual description of the data, they also give representation to the relationship between the variables under investigation. The network diagram and the descriptive text work together to communicate the variables and relationship between them to the reader more than each could independently do on their own (Miles & Huberman, 1994). The research programmes of Hanton and Connaughton (2002) and Hanton et al. (2002) proposed several steps to the analysis procedure within qualitative sport psychology research. These recommendations were applied to this study, and were as follows:

1. The researchers studied the raw transcripts to ensure familiarity with their content
2. Causal streams in the form of raw quotations were identified and encoded from each transcript

3. Separate inductive networks were developed from the data for each pre-competition phase with the frequency of each stream (percentage of respondents) being recorded.
4. Deductive analyse were performed ensuring that all themes were present in the raw transcripts.
5. Consensus validation was controlled by each individual on the research team independently identifying the causal streams and discussing the final networks until agreement was reached.
6. Each final map was sent to the participants for comments on content and accuracy of relationships.

Due to the temporal nature of the study, a further qualitative data analysis technique was applied to the causal networks called 'composite sequence analysis' (Miles & Huberman, 1994). This technique allows 'stories, plots or scenarios' from several causal network maps to be considered as meaningful time ordered sequences. Composite sequence analysis is proposed to maintain links between the data, and is a technique that has been used to analyse time ordered qualitative data (Miles & Huberman, 1994). Huberman (1989, 1993) utilised composite sequence analysis when assessing the 'career trajectories' of teachers over a ten year period. Specifically, causal maps were produced for each teacher, from which features of each were grouped together in themes through the use of causal networks for certain phases of the teachers career. These were then grouped 'within phases' giving an overall composite sequence analysis for the teachers career trajectory over time. This process subsequently identified several key phases across the ten year career trajectories of the population of teachers. The current study took the principles of Hubermans' (1989, 1993) analysis and applied it to the shorter phase of a 1 week pre-competition preparation period. Several

decision rules were produced for the creation of the composite sequence maps based on the guidelines of Miles and Huberman (1994) and Huberman (1989, 1993) and these included:

1. The theme itself had to imply the same meaning across the group.
2. Two or more participants within each group had to imply the theme within the same pre-competition time phase.
3. The theme had to be identified in the causal networks.

Due to the bulk of qualitative data produced, the software package NUDIST version 6 was used to aid data analysis.

5.4 RESULTS

5.41 ESM DATA

Although primarily collected to prompt recall in the interview setting, ESM data can act as significant findings in their own right, providing information into the changes that can occur in the participant's pre-competition responses over time (cf. Alliger & Williams, 1993; Gauvin & Szabo, 1992; Van Eck et al., 1998). Therefore, the labels recorded by both the facilitators and debilitators throughout the preparation period are listed in Table 5.2. Additional information contained within Table 5.2 includes the percentage of labels interpreted as positive and/or negative, and the percentage amount of time these labels were thought about or experienced.

In total, thirty-five different thought and/or feeling labels were recorded during the week leading up to competition. Of these, the facilitators and debilitators listed sixteen labels that were the same. Those recorded by the facilitators that were not listed

Table 5.2: Thought and Feeling Labels Across Pre-competition Preparation Time.

Time Period	Group	Label (N stated)	Interpreted as Positive		Interpreted as Negative	
			%	% Time	%	% Time
6 Days	F	excited (1), apprehensive (1), motivated (1), relaxed (1), anticipation (1), eager (1), confident (1), focused (1), aggressive (1), annoyed (1), tired (1)	73	43	27	20
	D	apprehensive (5), tired (3), relaxed (1), disappointed (1), determined (1)	18	15	82	30
5 Days	F	eager (3), apprehensive (2), relaxed (2), motivated (2), enjoyment (1), drained (1), excited (1), confident (1), focused (1), determined (1), tired (1), anxious (1), nervous (1)	73	43	27	20
	D	excited (3), apprehensive (2), tired (1), doubts (1), relaxed (1), eager (1), anxious (1), tense (1), nervous (1), concerned (1)	46	26	54	24
4 Days	F	relaxed (3), motivated (2), confident (2), apprehensive (2), excited (1), prepared (1), anticipation (1), eager (1), focused (1), determined (1), anxious (1),	93	46	7	10
	D	nervous (2), anxious (2), tired (2), apprehensive (1), focused (1), eager (1), uncertainty (1), confident (1), restless (1)	33	23	67	39
3 Days	F	focused (3), motivated (2), confident (1), apprehensive (2), relaxed (1), eager (2), anxious (1), readiness (1), fit (1)	93	45	7	20
	D	apprehensive (2), focused (2), tense (2), relaxed (2), nervous (1), anxious (1), tired (1), worried (1), motivated (1), excited (1)	43	32	57	30

Table 5.2 (continued): Thought and Feeling Labels Across Pre-competition Preparation Time.

Time Period	Group	Label (N stated)	Interpreted as Positive		Interpreted as Negative	
			%	% Time	%	% Time
2 Days	F	excited (3), motivated (1), confident (1), eager (1), anxious (1), fit (1), enjoyment (1), anticipation (1), determined (1), impatient (1), tired (1), worried (1), nervous (1)	88	47	13	20
	D	nervous (3), apprehensive (1), focused (1), tense (1), anxious (1), tired (1), worried (1), motivated (1), doubts (1), frustrated (1)	25	27	75	30
1 Day	F	excited (4), nervous (4), apprehensive (4), anxious (2), relaxed (2), motivated (1), determined (1), enjoyment (1), scared (1), concerned (1), focused (1)	73	46	27	15
	D	excited (3), nervous (2), apprehensive (2), tense (1), anxious (1), tired (1), worried (1), stale (1), uncertainty (1)	31	47	69	45
1 Hour	F	excited (3), nervous (3), apprehensive (2), anxious (3), relaxed (4), motivated (1), enjoyment (1), concerned (1), anger (1), worried (1), controlled (1), impatient (1)	70	64	30	33
	D	apprehensive (3), anxious (3), nervous (2), tense (2), worried (2), focused (1), relaxed (1), sick (1), excited (1), terrified (1)	17	40	82	53

Descriptors

F = Facilitator; D = Debilitator; % Time = Percentage time the group thought or experienced the positively or negatively interpreted labels

by the debilitators included; annoyed, aggressive, enjoyment, drained, prepared, anticipation, readiness, fit, impatient, scared, and controlled. However, of these labels, only enjoyment, anticipation and impatient were listed more than once throughout the week. Labels noted by the debilitators that were not listed by the facilitators included doubts, frustrated, stale, uncertainty, sick, terrified, restless, and disappointed. However, of these, only doubts and uncertainty were recorded more than once throughout the week.

At the descriptive level, interpretation of the labels recorded differed throughout preparation time for competition. Specifically, the facilitators consistently interpreted a greater percentage of their pre-performance labels as positive towards performance. Further, they spent a greater percentage of time thinking or experiencing the labels they interpreted as positive than the debilitators. Conversely, debilitators consistently interpreted a greater percentage of labels as negative towards performance, and thought or experienced these labels for a greater percentage of time than the facilitators.

5.42 CAUSAL NETWORKS OVER THE TEMPORAL PHASE

Analysis of the participant's transcripts resulted in six causal networks relating to one distinct post-competition phase, and two distinct pre-competition phases for the separate groups of facilitators and debilitators. These six conceptual frameworks highlight the time phase identified, the symptoms experienced, the strategies implemented in an attempt to restructure negative thoughts and feelings and/or stimulate positive thoughts and feelings, and the strategies perceived effects on symptom responses and performance. Each causal network consists of two major elements; (a) sets of variables linked together by a series of arrows showing the relationship and the direction of the relationship between the variables; and, (b) an annotation to each arrow indicating the percentage number of players who identified the time phase, symptom

trigger, symptom, strategy and perceived effect on performance. Therefore, each causal network should be interpreted by reading left to right across the page. For the purposes of results description, the three distinct time phases identified by the players will be reviewed in temporal order as competition approaches. Within each section, a description of the network produced by the facilitators will be compared to that produced by the debilitators. Finally, raw quotations obtained from the separate groups will supplement the networks to clarify analysis points.

5.421 CAUSAL NETWORKS FOR TIME PHASE I

Figures 5.2 and 5.3 display the causal networks produced within time phase I for the facilitators and debilitators respectively. The findings for this phase suggest both groups indicated a review phase following match performance on a Saturday (i.e., 7 days prior to next performance) which carried through to Monday of the following week (i.e., up to 5 days before competing). This phase was primarily triggered (83% of facilitators and 80% of debilitators) by the players reflecting back to their performance on Saturday (match day), which tended to result in an increase in the 'intensity' and 'frequency' of several negative post-performance thoughts. For example participant F3 suggested:

> '...the negative thoughts that I think are really negative would be very high after the game if I'd done things badly... so Saturday afternoon, Saturday night, Sunday... I know I do it erm... referring to the one we've just played if I've done some bad things then straight after the game I'd definitely go over and over and over it'

Where as participant F2 noted:

> '... erm... I think... I think I see more negatives after Saturday Sunday Monday after the weekends games or game erm cos I can look back on my performance and look at some of the negatives that's come out of that and feel the disappointment or see the mistakes I've made'

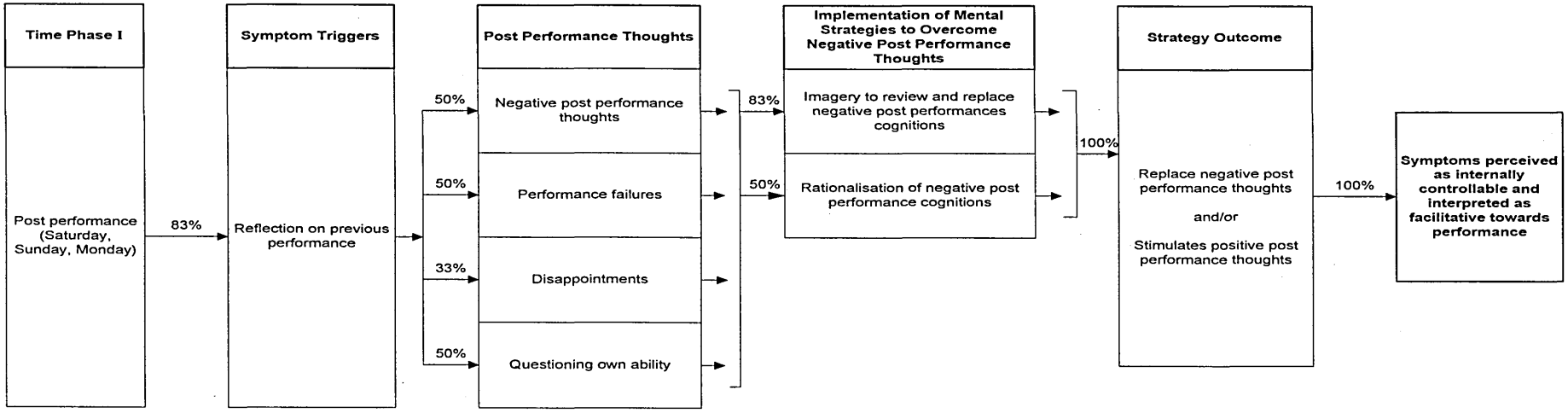

Figure 5.2 Time Phase I: Temporal Processes Post Competition: Performance Review, Triggers, Symptoms and Strategies (Facilitators)

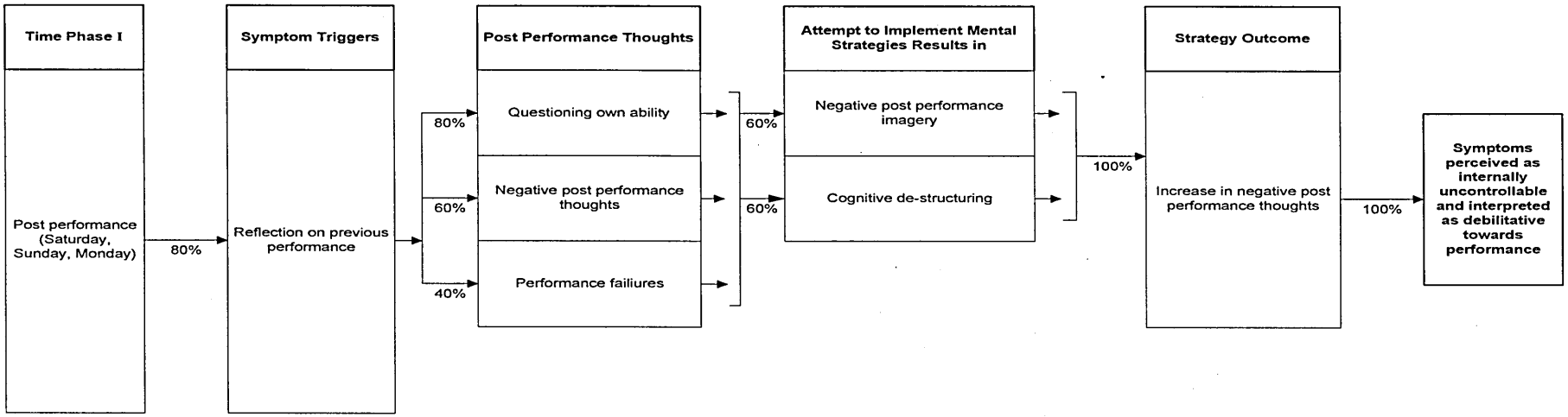

Figure 5.3 Time Phase I: Temporal Processes Post Competition: Performance Review, Triggers, Symptoms and Strategies (Debilitators)

For the facilitators, these negative post-performance symptoms invoked the implementation of two psychological skills in an attempt to restructure the negative symptoms or stimulate positive post-performance symptoms. Specifically, facilitators noted using imagery-based skills to review and replace negative post-performance images and thoughts (83%), in addition to using rationalisation skills to overcome negative performance thoughts (50%). For example, participant F1 described the following imagery routine used to replace naturally occurring negative post-performance experiences:

> '... I try and replay the goals... the mistakes I've done the goals I've let in that day and think was there anythin I could realistically do... and if there was take it on board where I'll do it next time... instead of why... why didn't I do it... also try and use other experiences again other times when in similar situations I've done well... made the save and not conceded you know... try and replay those... show myself that yeah I can make those saves I've done it before... and then try and think in the game the game that's just gone... replay the bits where I'd done well and think yeah I was pleased with that and let those images come through you know the good ones the saves or where I've done well'

Alternatively participant F3 indicated:

> '... I do it a lot... like if I've done something like a bad pass or if it's a one on one with the keeper or something like that... and I screwed it up I'd see myself doing what I did... so many times and times and times... but then if I did the same thing again later on and I did it well then come Sunday I would probably think about that... see the negative thing less and the positive like when I did it better more... they those images would take over'

The use of rationalisation was also noted by the facilitators as a means of overcoming negative post-performance thoughts (50%). For example participant F5 suggested:

> '... I think if I have time afterwards erm to say well there are other aspects of my game that I can do well in... I'd think about those I'd maybe be thinking well not every player can do everything... and focus on those type of thoughts on that side of things'

Where as participant F1 noted:

'... I think that I tend to think well its only hockey... erm... and I think there wasn't that many people watching... or well they make mistakes the forwards well like they might miss the goal miss a chance... and just try and lower the importance of it (hockey) in my life down so that if its going wrong or I feel negative it doesn't matter as much you know'

The use of these psychological strategies by the facilitators when experiencing negative post performance symptoms was suggested to 'replace' the negative post-performance images and thoughts with 'positive' ones (100%). This in turn indicated that the facilitators were able to 'internally control' (100%) their negative symptoms, and over a period of time re-interpret their post performance symptoms as positive towards subsequent performance (100%). This compared to performers in the debilitative group who indicated reviewing only negative images post performance (60%). Examples of these negative images included participants suggesting '... all the others come in you know like the ones where I didn't do really well ... you know like when I played a bad pass or missed a tackle or something like that' (D3); or, '... I'll see the shot and it won't go in or something like that... I'll shoot and its saved or I see the ones I've missed or something like that' (D4). This focus on negative images led to an increase in 'negative' post-performance thoughts (100%) suggesting that debilitators could not control these symptoms 'internally' leading to a continued debilitative symptoms interpretation (100%).

5.422 CAUSUAL NETWORKS FOR TIME PHASE II

Figures 5.4 and 5.5 illustrate the causal networks produced for time phase II of the temporal period for both the facilitators and the debilitators. Both groups (100%) indicated that this second phase of the pre-competition period related to the Thursday and Friday before competing on the Saturday (i.e., between 2 and 1 day before performance). Both groups further suggested that the primary triggers for symptom

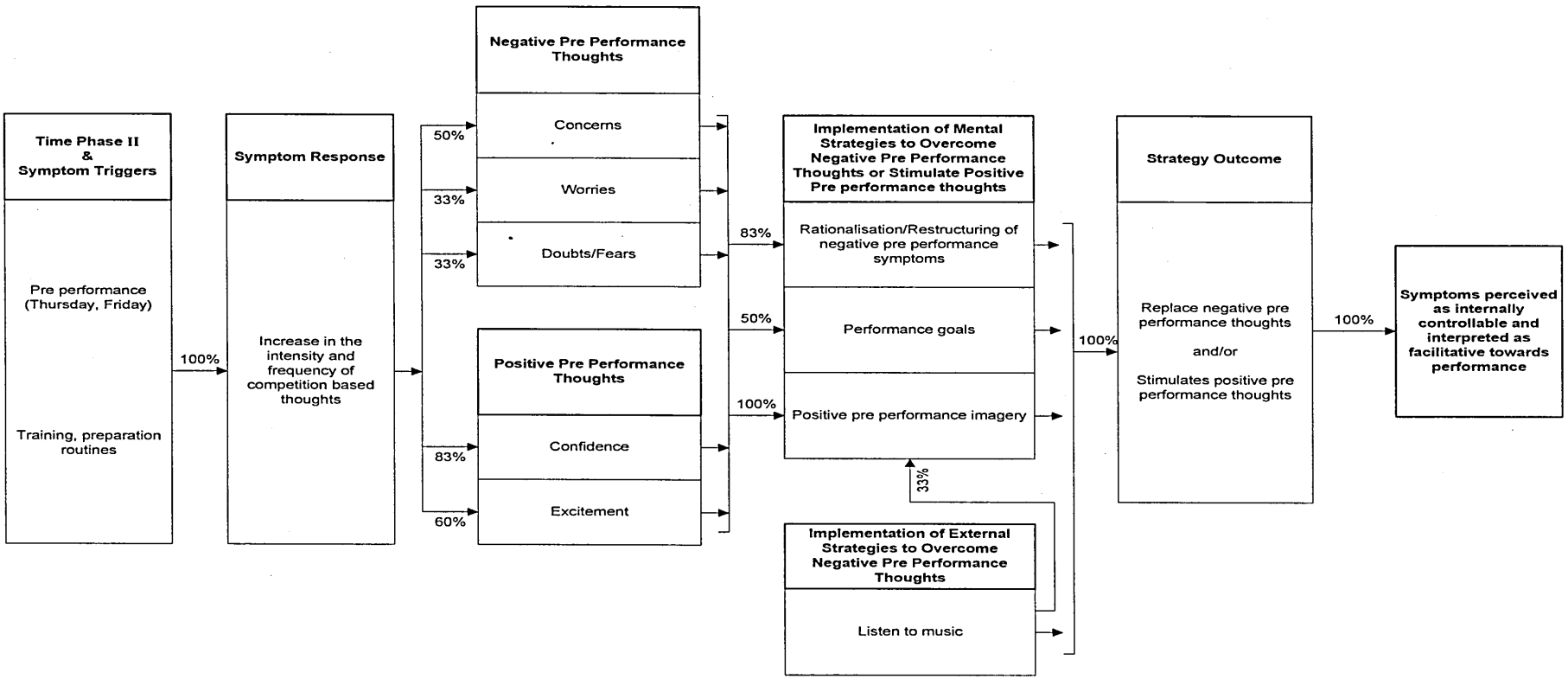

Figure 5.4 Time Phase II: Temporal Processes Pre-Competition (Thursday/Friday): Triggers, Symptoms and Strategies (Facilitators)

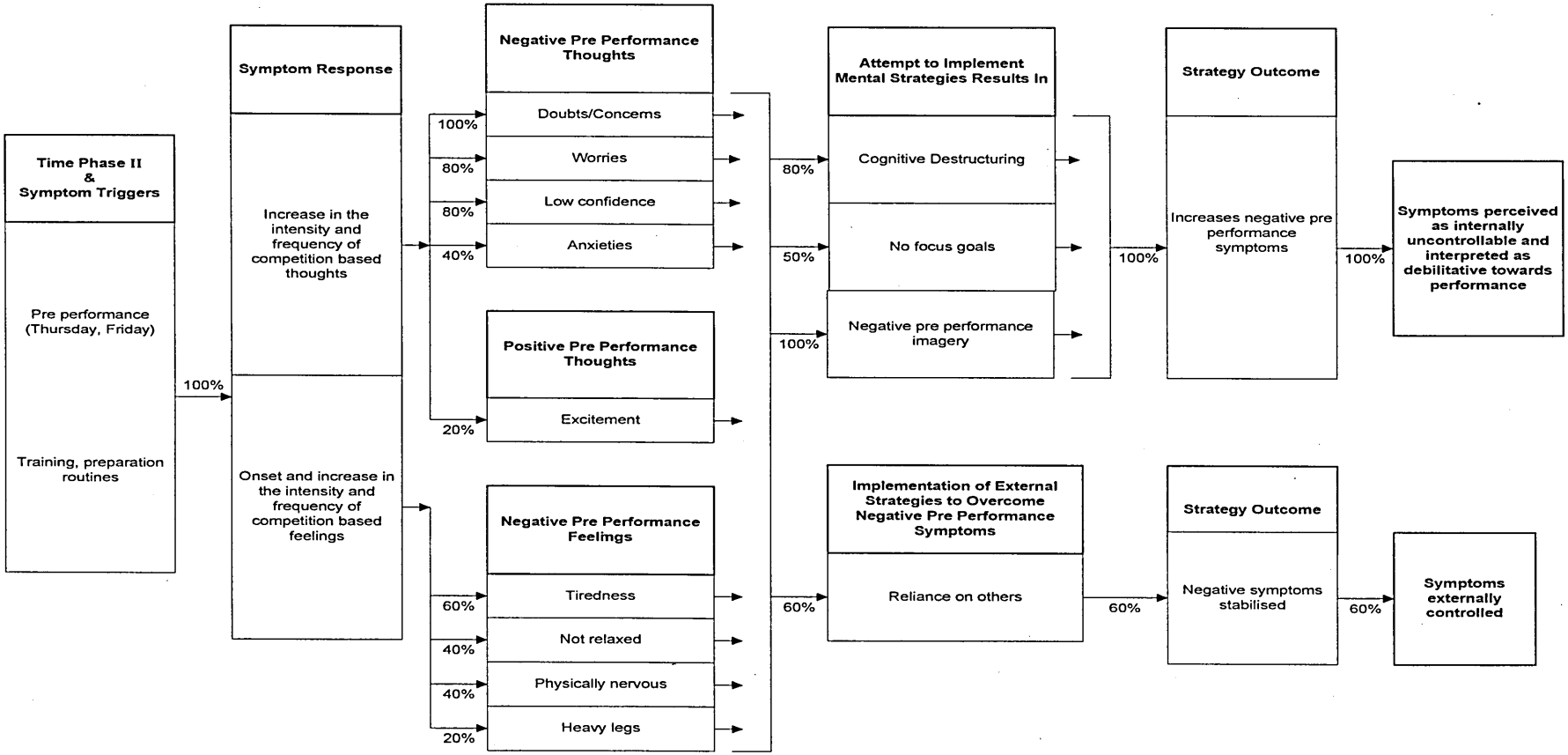

Figure 5.5 Time Phase II: Temporal Processes Pre-Competition (Thursday/Friday): Triggers, Symptoms and Strategies (Debilitators)

onset during phase II was involvement in team training sessions, and the use of preparation based routines (100%). For example, participant F6 expressed:

> '... prior to competition... Thursday nights is really my trigger... I think cos its trainin... and cos your with all the girls you know... trainin trainin together that's when I get those (negative) thoughts really'

Where as participant D5 noted that:

> '... its kinda Thursday that it (negative symptoms) really kicks in... like I do think about it but it won't occupy much time Monday to Wednesday... its Thursday... Thursday when it (negative symptoms) really kicks in'

The players in both groups indicated that these triggers caused an increase in both the 'intensity' and the 'frequency' of the symptoms they experienced through both the Thursday (i.e., 2 days) and Friday (i.e., 1 day) before competing (100%). Participant D2 described how training affected her symptom responses as follows:

> '... mentally obviously you just get... really the Thursday night for me... trainin is the point where everything really starts to kick in and everything (the symptoms) just gets more intense... more often you know I'm just thinkin about them (the symptoms) more of the time'

Participant F5 further indicated that these symptoms continued to increase through the Friday (i.e., 1 day) before competition:

> '... erm yeah I would say that they (the symptoms) do erm they do get more intense... and I do think about them more regularly say like on a Thursday... Friday like especially on a Friday night ... I'll be thinkin oooh its in the mornin and I think about what if this time tomorrow night I sit here with either 3 more points no points and stuff like that so I do think about it a lot more... more often'

At this pre-competition phase, the facilitators reported experiencing only thoughts, both negative and positive, about upcoming competition. Specific examples of the thoughts that were negative in nature included symptoms such as 'concerns' (50%), 'worries' (33%) and 'doubts/fears' (33%). The thoughts that were positive in orientation included symptoms such as 'confidence' (83%) and 'excitement' (60%). In comparison, the debilitators reported experiencing both thoughts and feelings within phase II of the

pre-competition period. The thoughts experienced were solely negative in nature and included examples such as 'doubts/concerns' (100%), 'worries' (80%), 'low confidence' (80%) and 'anxieties' (40%). Additionally, several negative feelings were also reported by the debilitators including symptoms such as 'tiredness' (60%), 'not relaxed' (40%), 'physically nervous' (40%) and 'heavy legs' (20%). These feelings, in turn, affected the negative thoughts the debilitators experienced, for example, participant D2 described:

> '... sort of physical side Monday and Tuesday I sort of feel not physical for it but Thursdays... that's maybe when I peak... too early too aroused and on Friday I always feel tired you know I get a bit worried thinkin my body feels tired my body feels tired you know I've got to play tomorrow like if I was playing tomorrow like now I'm tired I'd be thinking completely rest and then its like don't have a lazy day it makes you feel worse and then I worry about it more'

The facilitators described the implementation of several psychological skills as mechanisms to re-interpret the negative thoughts, or to help stimulate positive pre-performance thoughts. These skills included the use of 'rationalisation/restructuring of negative pre-performance symptoms' (83%), the use of 'performance goals' (50%), and the use of 'positive pre-performance imagery' (100%). Linked to the use of 'positive pre-performance imagery', the facilitators also reported the use of an external strategy, 'listen to music' in attempt to stimulate positive images (33%).

An example of the 'rationalisation/restructuring of negative pre-performance symptoms' was provided by participant F6 who when asked by the interviewer 'Why do you think if you have those negative thoughts on a Thursday you are able to turn them around?' suggested that:

> '... I think it's cos I still know I've got a day and a half to go or whatever... and it's not like now now.... erm... and you know... maybe if I get in a certain frame on a Thursday night... or on a Friday does that mean that I'm still gonna be in that frame of mind on Saturday?.. and the answer is no it doesn't.... I've got you know... a whole Friday to get through of work... distraction and things you know'

The use of 'positive pre-performance imagery' was also suggested as a strategy used to reinterpret negative thoughts and/or stimulate positive thoughts. The following

passage of text between the interviewer (denoted by an I) and participant F2 when discussing the use of imagery within phase II of the pre-competition period illustrates this point:

> F2 '... yeah that would mainly be the visualisation... I think about every range of skill but I tend to bring it back... I tend to focus on goals I've scored that's a good positive thing for me cos erm... I love scoring goals
>
> I '... do you have a favourite?'
>
> F2 '... it was a cracker... it was it was a right one.. it was my last game for **** (name of team) a reverse stick shot right-hand top corner... lovely right from the top of the D
>
> I '...and do you play that back to yourself'
>
> F2 '...oh god yeah a very favourite that one yeah I just... I visualise sort of the stuff I can remember from the goal like when I got the ball... cos it was an individual goal... erm yeah sort of like the run up to the goal when I got in the D... erm body position feeling that and sort of like I remember I sort of like remember the connection with the ball... which was a good one and feelin that and just remember everything really... yeah and that happens a lot on the Friday night I replay things like that'

Additionally, the facilitators suggested a focus on performance and process goals around such times with participant F1 suggesting that:

> '... yeah my goal at the beginning of the season was to start lying down at corners which I do do now... and now my goal is to not concede off corners... well particularly the straight strike... erm fair enough if I save it and they follow up... but yeah corners is a big goal to really be and basically be really solid not worry about the flash stuff so much but just to get the basics right instead of being inconsistent'

The use of these psychological strategies by the facilitators was suggested to 'overcome' negative pre-performance symptoms. This led to the 'stimulation' of positive pre-performance symptoms (100%), which in turn, suggested the facilitators were able to initiate psychological skills in order to 'internally control' their negative pre-performance symptoms, thus leading to a re-interpretation of symptoms so they were perceived as facilitative towards performance.

In comparison, the debilitators appeared to 'attempt to implement several mental skills' but appeared unable to 'control' the output of the skills. The use of 'cognitive de-structuring' (80%) was highlighted by the debilitators in conjunction with detailing 'no goal focus' (50%), and the use of 'negative pre-performance imagery' (100%). Cognitive de-structuring was characterised by thought processes acting to convince the debilitators of negative aspects of past performance, or negative aspects of preparation for upcoming performance. For example, participant D3 described the following thought process during phase II of the pre-competition period:

> '... I would say that I don't help myself... cos I tend to think really negatively... I tend to think that I'm tired and worried so I become tired... so then my legs feel heavy you no what I mean I'm not sayin that there not heavy... but I tend to convince myself that I'm tired which is not good and then I worry about that you know...'

Where as participant D2 described a similar thought process pattern when suggesting:

> '... its just like a combination of mental and physical things they like come all together the worries make me stale... the physicalness makes me tired and I just like feel in this little rut ... and that's when erm it's a completely negative thing and a completely negative feelin I get anxious and worried and it's a distraction to me a massive distraction'

Additionally, the debilitators described initiating pre-performance imagery routines which although started off as positive pre-performance images tended to 'drift' into images with a negative perspective. The following passage of text discussed between participant D3 and the interviewer emphasises this point:

> D3 '... kinda well I try and think... like I said earlier see the things that I've done right you know in previous games... you know when I've had a good game or what ever I'll try and replay those... but it still doesn't kinda... kinda the negatives push the positives away for me you know'
>
> I '... right so you start off with that positive... how would you go through that process... describe that process to me'
>
> D3 '... I'd try and just... just think of the games that I've done well in ... see the passes I've made and see the tackles... and then but then it would go back to will I be able to do that this weekend and it pushes it away... you know what I mean cos although I did it last weekend it doesn't mean to say that I'll do it this weekend... and then those negative ones come in as well... I'll see the passes I've missed and the

bad ones... do you know what I mean they will come in and I will play those see all those'

The debilitative group also indicated a lack of goal setting skills highlighted by a lack of 'focus goals' for upcoming competition (50%). For example, when asked about the use of goal setting during phase II of the pre-competition period participant D5 suggested:

'... erm... I probably don't (set goals) I think... I don't sort of think individually at that level its more sort of just whether its gonna work out for the team or not... (yeah) erm I don't know whether I really see myself as having like a huge impact on it you know'

The attempted implementation of these mental strategies was suggested to lead to 'further increases' in the 'intensity' and 'frequency' of negative symptoms for the debilitators (100%). As such, the debilitators indicated having 'no internal control' over these negative thoughts and feelings which led to a continued debilitative interpretation of the symptoms with regard to their effect on upcoming performance (100%).

However, the debilitative group did suggest they utilised 'external strategies' during phase II of the pre-competition period in an attempt to overcome negative thoughts and feelings and/or stimulate positive symptoms. Specifically, 60% of the debilitators suggested a 'reliance on others' as a cause of 'stabilising negative symptoms'. For example participant D5 suggested:

'... I rely quite a lot on team mates who I value as well to kind of... to erm I can't think of the word... respect yes that's the one... yeah people who I respect if you know I need them almost to say well done to me or I can't... I know I'm pessimistic generally in my outlook on things... I just feel its easier with hockey like erm I just kinda I'm quicker to pick up on the negatives so I almost need other people to highlight the positives for me so in trainin if that's done then I'll be feelin generally more sort of more confident I suppose and that helps me to get over the negative thoughts'

5.423 CAUSAL NETWORKS FOR TIME PHASE III

Figures 5.6 and 5.7 illustrate the causal networks produced for time phase III of the overall pre-competition temporal period. Both groups of players (facilitators and

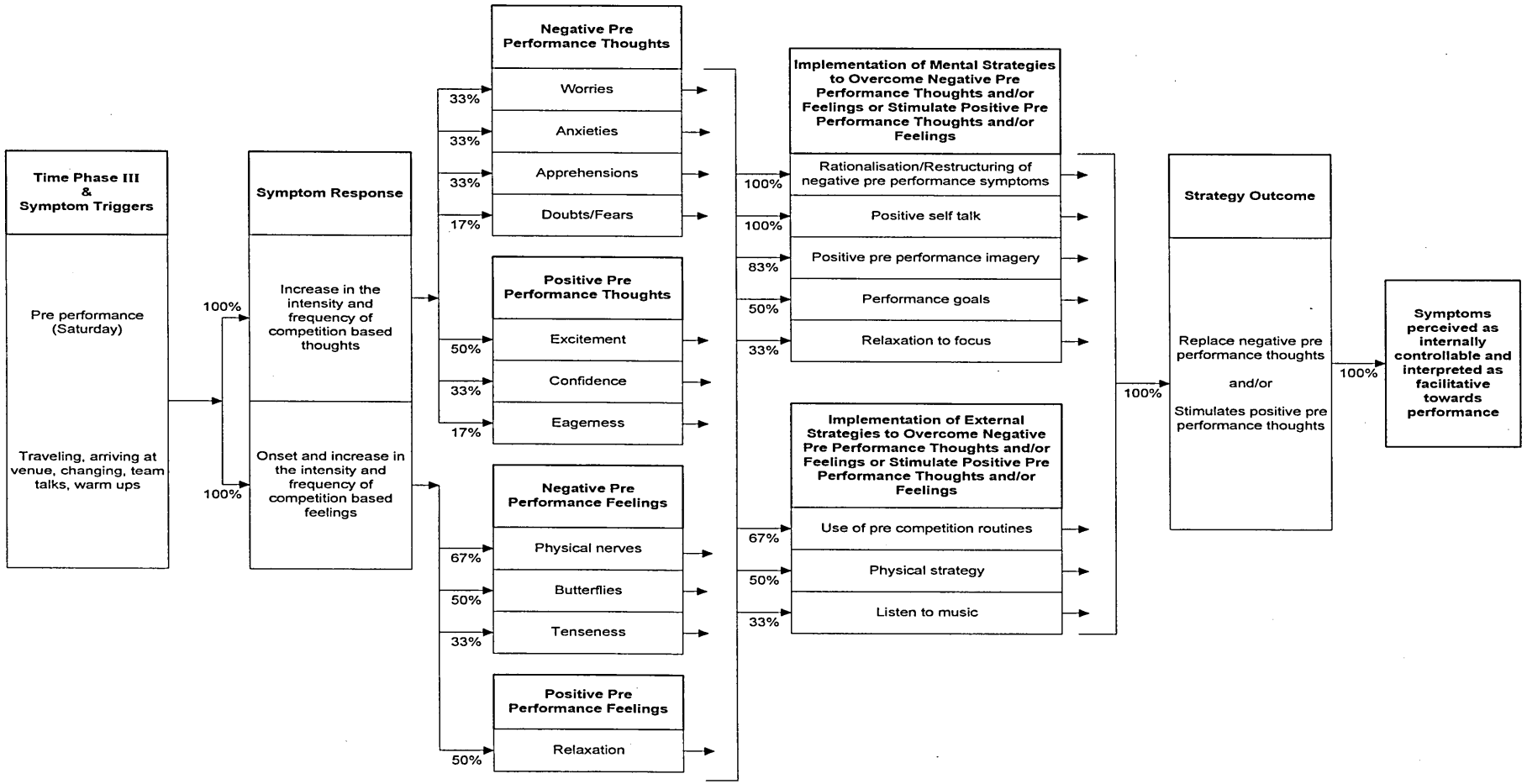

Figure 5.6 Time Phase III: Temporal Processes Pre-Competition (Saturday): Triggers, Symptoms and Strategies (Facilitators)

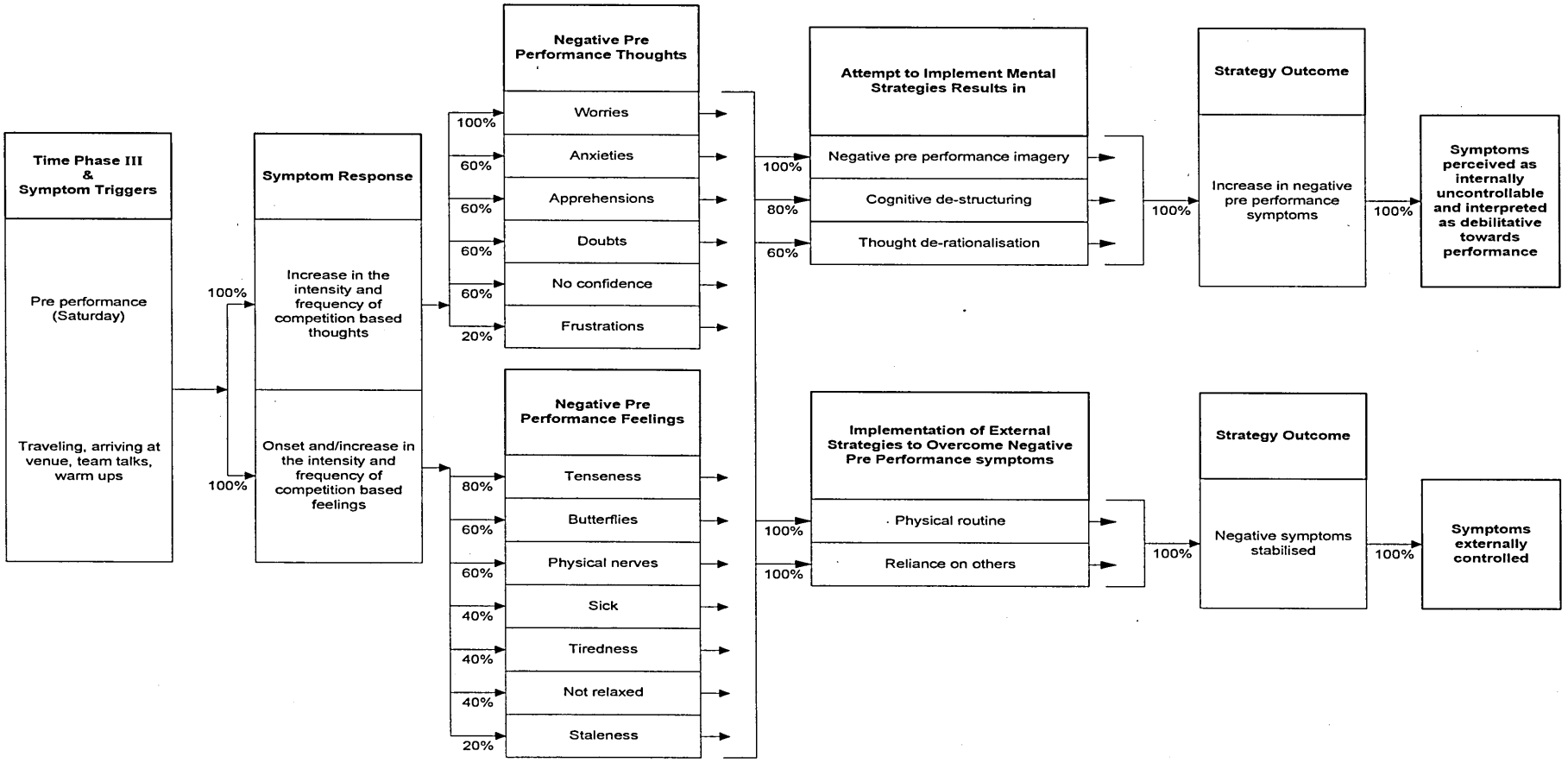

Figure 5.7 Time Phase III: Temporal Processes Pre-Competition (Saturday): Triggers, Symptoms and Strategies (Debilitators)

debilitators) highlighted that this phase was centred on the day of competition (100%). For example, participant F4 noted:

> '... training to an extent... but not till Saturday mornin seriously... only when its like 100% domination of thoughts its Saturday mornin the first time I think about is on Thursday ... and then all the time through Saturday mornin really the thoughts and the feelins really kick in'

Where as participant D5 described the following:

> '... I think... kinda on the match days that's kinda like a day in itself a fresh start... and there all there (the symptoms) for then... all the worries and doubts come in ... the feelins the nerves the tension you know there all there on match day'

Both the facilitators and the debilitators added that the symptoms experienced were primarily triggered by events such as 'travelling to the match venue' (100%), 'arriving at the match venue' (100%), 'team talks' (100%) and 'warm ups' (100%). For example, participant F2 noted:

> ' erm... in the car on the way to *** ... yeah that's when there (the symptoms) their most notable cos I just wanna get there especially when *** driving cos she drives slow... its not too bad with *** cos she's a bit more speedy but when its *** it's a killer it's a killer my stomachs in churns and everythin when she's drivin'

Where as, participant D4 described the following scenario when arriving at the club on match day:

> '...probably turning into the hockey club on the Saturday mornin just steppin out and seeing everyone... and just going into the club house and seein the opposition and it just kinda becomes real I guess like you can think about it before hand but then when you actually walk in its like ohhh its in your face now its here'

The team talk provided by the coach was a further trigger that acted to stimulate the pre-competitive symptoms the players experienced. The following passage of text described by participant D1 emphasises this point:

> '... I think only when **** comes up to talk to us I start to think about them (the symptoms) then cos I get that sort of silence which in that only he is talking there's not a lot of banter or whatever else is goin on in the changin rooms before... I start to get sort of butterflies about

> what we're gonna be doin and when he says things like... we've got to win this like or you know you've gotta win a game... and that gets me into thinkin shit we've really got to pull somethin out here otherwise we're gonna be in all sorts of shit so... I think in the changing rooms is the time when I start to think about stuff the thoughts the worries and the feelins come on... I really start to think about them'

The final trigger suggested to lead to an onset of symptoms was the warm-up routine the players conducted prior to a competitive match. Participant D2 described how the warm-up had the potential to stimulate negative symptoms:

> '...and then on a Saturday my body sometimes feels stale in the warm-up I'm sort of hittin the ball but I'm not really feelin anythin so I just feel stale again its a combination of mental and physical things... you know the times in the warm up when we just get the ball and we knock it around that's the worst thing I can do when I feel like that I just want to get it and the first time I hit it I wanna smack it really hard you know just to shake myself into that level... get rid of the tension you know... it frustrates me even more cos I think if I don't do that then its like dangerous and if I can't get that (the tension) out of my body you know and then I start to think negatively about it... it worries me I start to think back thinkin ohh we're doin this drill again... or and then we're doin this and we're out here an hour and a half before hand and listening to the same talk playing whoever and its like I'm trying to be positive but I just know in the back of my mind its not happenin its all negative you know'

These triggers caused the pre-competition thoughts and feelings of both facilitators and debilitators to 'increase' in 'intensity' and 'frequency' during phase III of the temporal period (100%). The facilitators reported experiencing pre-competition thoughts that were both negative and positive in nature. These negative responses were characterised by thoughts including 'worries' (33%), 'anxieties' (33%), 'apprehensions' (33%) and 'doubts/fears' (17%). Where as, positive orientated pre-performance thoughts included symptoms such as 'excitement' (50%), 'confidence' (33%) and 'eagerness' (17%). In comparison, debilitators reported experiencing only negative orientated thoughts within time phase III of the temporal period. These negative responses included thoughts such as 'worries' (100%), 'anxieties' (60%), 'apprehensions' (60%), 'doubts' (60%), 'no confidence' (60%) and 'frustrations' (20%). The feelings experienced by the facilitators included both negative and positive orientated labels. Negative

feelings reported by the facilitators were characterised by symptoms such as 'physical nerves' (67%), 'butterflies' (50%) and 'tenseness' (33%). Where as, positive responses were characterised through feelings of 'relaxation' (50%). In comparison, debilitators reported no positive feeling labels during phase III of the temporal period and suggested experiencing feelings that the were negative in nature. These included responses such as 'tenseness' (80%), 'butterflies' (60%), 'physical nerves' (60%), 'sick' (60%), 'tiredness' (40%), 'not relaxed' (40%) and 'staleness' (20%).

The facilitators reported the implementation of several internal psychological strategies and external strategies in an attempt to restructure these negative pre-performance thoughts and feelings, and/or stimulate positive pre-performance symptoms. The internal psychological strategies included skills such as 'rationalisation/restructuring of negative pre-performance symptoms' (100%), 'positive self-talk' (100%), 'positive pre-performance imagery' (83%) and 'relaxation to focus' (33%). The external strategies employed by the facilitators included approaches such as 'use of pre-competition routines' (67%), 'physical strategies' (50%) and 'listen to music' (33%). A typical example of the facilitators 'rationalisation/restructuring of negative pre-performance symptoms (both thoughts and feelings)' was provided by participant F1:

> ' yeah... nervous erm anxious... and I'd say actually there positive because erm... if I'm nervous and anxious I become more focused and I want to do it... it's a way of helping that nervousness as well... if I'm anxious I feel focused and if I'm focused the nerves are controlled you know... so I think its important for me to feel nervous cos then there is a point behind why I'm doin it'

Where as participant F3 suggested:

> 'I think it is important to think that way (negatively) ... I think like that before every game no matter how important it is I'm really nervous for the game I'm really worried about not playing well... but I think if I'm like that its because its important to me you know and I think that's a positive thing because if I'm worried about not playing well feelin nervous or whatever then I'll really try hard really try hard to play well'

Participant F5 further outlined how she restructured feelings that were negative in orientation:

> '... erm I just think it means the adrenaline is pumpin so obviously its makin my body prepare... my bodies gonna be prepared and ready for the game I can get straight into it rather than thinkin I've gotta work up to that match pace and I've got to get into the game and stuff like that so I think its positive that I'm in that physical state you know tense or whatever nervous it means I can start and get straight into the game rather than havin to work up to it'

The facilitators also suggested the use of 'positive self talk' as an internal psychological strategy utilised at such pre-competition times. Specifically, the facilitators noted using positive keywords to help overcome experiencing negative symptoms. For example, participant F6 suggested using the following self-talk routine to help overcome negative symptoms:

> '...erm just the little key words like you know 'come on' ... 'think head down'... 'low and hard' I'm saying things like that to myself... as I said... I don't go into great detail... that's all it needs just some key words something just to get me focused and overcome them... the negative thoughts'

Where as participant F4 indicated that:

> '...if I feel like that... negative and all no I just take myself away from it I think that's how I use it erm... if things are going bad for me or anythin and I'm feelin low then I just try to focus I think that I just start sayin to myself like 'cmon you've just gotta do it you've done it before' things like you know 'stay cool' 'stay calm' say to myself 'you've been here before'... 'you are good enough' things like to make myself feel better... more at ease with myself and that works'

Positive pre-performance imagery was again suggested by the facilitators as an internal psychological strategy utilised to overcome negative pre-performance symptoms. The facilitators also noted that the use of this skill was most efficient when used in certain environments, or at certain specific pre-competition times. Specifically, the facilitators suggested the technique was most useful during quiet times during match day preparation. For example participant F6 described the following scenario and her use of imagery at such times:

'erm... I wouldn't use imagery when I'm actually warming up... physically warming up ... because it's hard to kind of do it then I think... but I... take last Saturday as an example when **** (the coach) said... you know thirty minutes before the game... you know... just spend thirty seconds thinking about what you're going to do... that's an ideal opportunity for me to just sit and think... you know... shut my eyes and you know visualise a pass I might make across the pitch to ***... or to ***... or to *** or to whoever.... or up the line to *** and I could... you know... because I could actually sit down and think about it rather than while I'm running around... being involved in the physical warm up so its like at those quiet times when imagery is good... thats when its good to use'

Participant F2 described a similar process through her use of imagery during phase III of the pre-competition period:

'erm... yeah I'd mainly visualise stuff mainly in that quiet time that time in the changing rooms before hand... just sort of like picture stuff that could happen in the game and see it happening in the game... see myself scoring shooting or whatever yeah its good to do that in those quiet times'

Several facilitators also suggested a focus on performance and process goals during phase III of the pre-competition period. For example, participant F5 noted:

'My goals before the game are the same probably every time and that's not to give the ball away.... to keep possession and not to give it away... cos I'm a defender and that's crucial... and to have the confidence to hit around the back because you know playing in this league you often get pressed really pressed in certainly as a left defender.... and I always think to myself tell myself ... right... regardless of what they do... regardless of what the opposition do... I'm gonna have the confidence to hit around the back... and get it across to the right... because obviously our right side is our most attacking side... so those type of goals are what I have'

Additionally, several facilitators also noted using relaxation strategies as a technique to 'focus' during phase III of the pre-competition period. For example, participant F2 indicated:

'...if I feel like that (nervous) I just to try and get relaxed... erm... I get relaxed and that focus' me they just suddenly go and everything I suppose just relaxing... breathing and thinking focus you know... they just go the butterflies the thoughts and everythin and then I'm just suddenly I guess I just feel more relaxed more focused and more confident'

The facilitators also noted using several 'external' strategies to overcome negative symptoms during phase III of the temporal period. These strategies included the use of 'preparation routines', 'listening to music and 'physical strategies'. For example, participant F1, the goal keeper, noted the use of routines on match day:

> 'Saturday get there at whatever time and then on the match day when everyone's in the changin room I want to make sure I've got all my lower half kit on by the time we leave the changin room and I don't like to be saying... I don't know say if I haven't spent as long in there or I haven't got there in time or I've been messin about or something then I don't like them to be leaving me to be rushing getting the rest on... so I like it all to go on I like to have time to make sure its all right you know... quite comfortable... and then walk down to the pitch in the bottom half and then when they go for their runs put the top half on and get that sorted and then I like to have chance to do a little bit of running and stretch before cos I don't want to pull anything when their shooting and then *** (the coach) works me through my little routine and does his bit'

The facilitators also noted that a physical warm-up was a mechanism through which negative pre-match symptoms could be overcome, for example, participant F5 suggested:

> 'A really good warm up...a really good warm up helps me and for me that is a physical warm up erm... whereby I get my second wind before I actually go into the game.... where I actually feel that little bit breathless and tired before I actually start... that's what I actually class as a good helpful physical warm up.... I can't stand it when I go into a game not feelin like I've run around and properly warmed up and really into it... and it's not just the physical stretchin and stuff... you know... the ball and stick work as well.... I normally take myself out of the standard practices about four minutes from the end because I want to do something personal to me that I know that I'll do in the game.... so I'll ask somebody else to have a hit with me and work on somethin specifically... and just spend a few minutes prior to startin doin that.... and I think I need that cos... it's much more specific to me so it elps me get over the negative feelins that physicalness you know'

The outcome of these internal psychological strategies and external strategies by the facilitators was suggested to 'overcome' the negative pre-performance symptoms and lead to the 'stimulation' of positive pre-performance symptoms (100%). This indicated that the facilitators were able to implement both internal psychological strategies and

external strategies in order to 'internally control' the negative pre-performance symptoms they experienced. This ultimately led to a re-interpretation of negative symptoms resulting in a perception that the symptoms were facilitative to subsequent performance.

In comparison, the debilitators appeared to 'attempt to implement several mental skills' but appeared unable to 'control' the output of these skills. The use of ' negative pre-performance imagery' (100%), 'cognitive de-structuring' (80%) and 'thought de-rationalisation' (60%) was noted by the debilitators during phase III. The imagery routines utilised by the debilitators resulted in the use of 'negative' visual images during preparation times. For example, the following passage discussed between participant D4 and the interviewer illustrates this point:

> D4 'I just kind of go of into my own little world and just think about and turn it in on itself... I do like I said in the changing room I'll try to see a shot or something like that but that's about it'
>
> I 'and can you control that control the shot control the image'
>
> D4 '...sometimes... but not often mostly its something where I'm so nervous so apprehensive the pressures there and I can't go through it (the image) it doesn't work... or I'll see the shot and it won't go in I can't control it or something like that.... I'll shoot and its saved or I miss or somethin like that you know... just because I'm in that negative frame of mind you know you know... nervous and apprehensive'

The debilitators also noted using the two thought based processes of 'cognitive de-structuring' and 'thought de-rationalisation' as mechanisms to convince themselves of the negative aspects of preparation for performance. For example, participant D2 described how her thoughts would negatively de-structure immediately prior to competing:

> 'I do feel like in the warm-up when we start with the stick and ball stuff erm for me that's a massive time and I'm thinkin how am

> a going to feel today and sometimes I start thinkin how I feel in my warm up is how I'm gonna do in the game... so in the warm up if I'm not striking it properly or hittin it solid or don't feel comfortable then my mind starts telling my body oh you know your not things aren't clicking today... and that's when the nerves come and completely take over then I start to worry about that too... which is not good as it takes away my focus you know I'm completely focused on the nerves and worryin about those'

Further, the passage of text below highlights how participant D5 negatively de-rationalised her thoughts immediately prior to a game when attempting to rationalise her pre-performance symptoms:

> 'I'm not sure how much I really believe what I'm trying to say to myself... I know that what I feel is negative and that that's not gonna help me so yeah so yeah its like you know I've done it I've done this before... I've done alright before I haven't let people down just that I'm sort of able enough to be there kinda thing ... so I sort of use that to try and reinforce things... but then I have this question... this big question just cos I did it then can I do it now... does it mean to say that I will be able to do it today... and then it comes down to no... just cos I did it then it doesn't mean it will happen for me today... and then I worry about that you know'

Several 'external strategies' were also implemented to overcome negative pre-performance symptoms. These included the use of 'physical routines' (100%) and a 'reliance on others' (100%). For example, participant D1 described how the use of a physical warm-up routine helped overcome negative pre-performance symptoms:

> 'I think the way that I'll have warmed up again in an active way... if I've been hitting some good balls or I've scored a few goals or what ever that'll give me a real big boost and I'll think right I'm obviously up for this game I've just proved it to myself in a physical way by the way I've just been hittin those balls or making those tackles or whatever so I think that is obviously positive for me... but I don't think I necessarily sit down and mentally think about what's positive for me before this game... again I think I have to have that physical reinforcement to reiterate it with myself that I'm doin something active something positive and its sort of workin towards the game I don't see my mental state as necessarily workin towards the game it normally works against me... I need something else on top of that I think... I've not got a good imagination and I can't focus on that mental side... its a physical thing for me I think.. I think it has to be physically reinforced'

Participant D4 also highlighted this point:

> 'I think things like nerves is ok to a point and its quite natural and I try to tell myself that but things like you know the other negative things the apprehension the sickyness the pressure and the worry I think for me I can only overcome them in the warm up if I have a good shot or I'll score a good goal or something like that... and they'll only be overcome by something like that I think... I think it is just actions rather than something that I can do mentally... internally'

The debilitators also noted a 'reliance on others' as an external strategy to overcome negative symptom occurrence. For example, participant D5 suggested:

> 'something like feeling sick or being apprehensive and worried I can't control cos as soon as I pull into the club its like something just goes in my tummy and its like oh woooo... I don't think I can control them I think.... I think other people can cos like if I get a bit of encouragement or talk to someone or something that boosts me it makes me more positive than anythin that I do internally anythin I can do myself... unless I do in the warm up I'll do something good but... I don't think I can purposely sit down beforehand and control them (the negative symptoms) like say to myself I'm not going to be that way... like those those thoughts the pressure on myself and the apprehension I can control them...I'm not going to be like this I just can't do that'

Participant D1 also highlighted this point:

> 'I suppose when I do walk down (to the pitch) I'm always talking to somebody I usually talk to somebody and I do that deliberately erm... it just makes me feel that sort of tells me that I am part of this team and that's somethin that I can do so I'll talk to these people and it'll help me to remember why I want to do this and why I want to be here and that distracts me from the negative thoughts'

The outcome of the attempted 'internal mental strategies' that the debilitators implemented was suggested to lead to 'increases' in the 'intensity' and 'frequency' of negative pre-performance symptoms (100%). The debilitators indicated they had 'no internal control' over these negative symptoms which led to a continued debilitative interpretation of thoughts and feelings regarding their effect on upcoming performance. However, the use of the 'external strategies' of 'physical routines' and 'reliance on others' was suggested to 'stabilise' the negative symptoms (100%) resulting in an 'external control' for the thoughts and feelings (100%).

5.43 COMPOSITE SEQUENCE ANALYSIS OVER THE TEMPORAL PHASE

Following completion of the causal networks, composite sequence analysis maps were created for the facilitators and debilitators (Figures 5.8 and 5.9 respectively), these maps detail the symptom responses and strategies used throughout the whole of the temporal period (cf. Huberman, 1989, 1993; Miles & Huberman, 1994). A synopsis of the maps suggests that the facilitators utilised imagery to review and replay negative post-competition experiences, and, over time, these negative images were replaced with positive post-performance images. In conjunction with thought rationalisation, this imagery process led to a facilitative interpretation of post performance thoughts. In comparison, the debilitators map indicates a continued use of negative post-performance imagery and thought de-structuring during the post-competition phase. The use of these processes led to a continued negative interpretation of post performance symptoms.

For phase II of the pre-competition period, facilitators indicated an increase in negative thoughts triggered by group training times and preparation routines. The facilitators operationalised the internal psychological skills of positive pre-performance imagery, rationalisation/restructuring of negative thoughts, and the use of performance goals, and the external strategy of listening to music linked to the use of positive performance imagery as mechanisms to overcome negative symptoms. The outcome of these strategies resulted in a reinterpretation of symptoms so they were perceived as facilitative towards future performance. In phase II, debilitators indicated an increase in negative pre-performance thoughts and feelings triggered by group training times and preparation routines. The attempted implementation of internal psychological skills by the debilitators resulted in the use of negative pre-performance imagery, cognitive de-

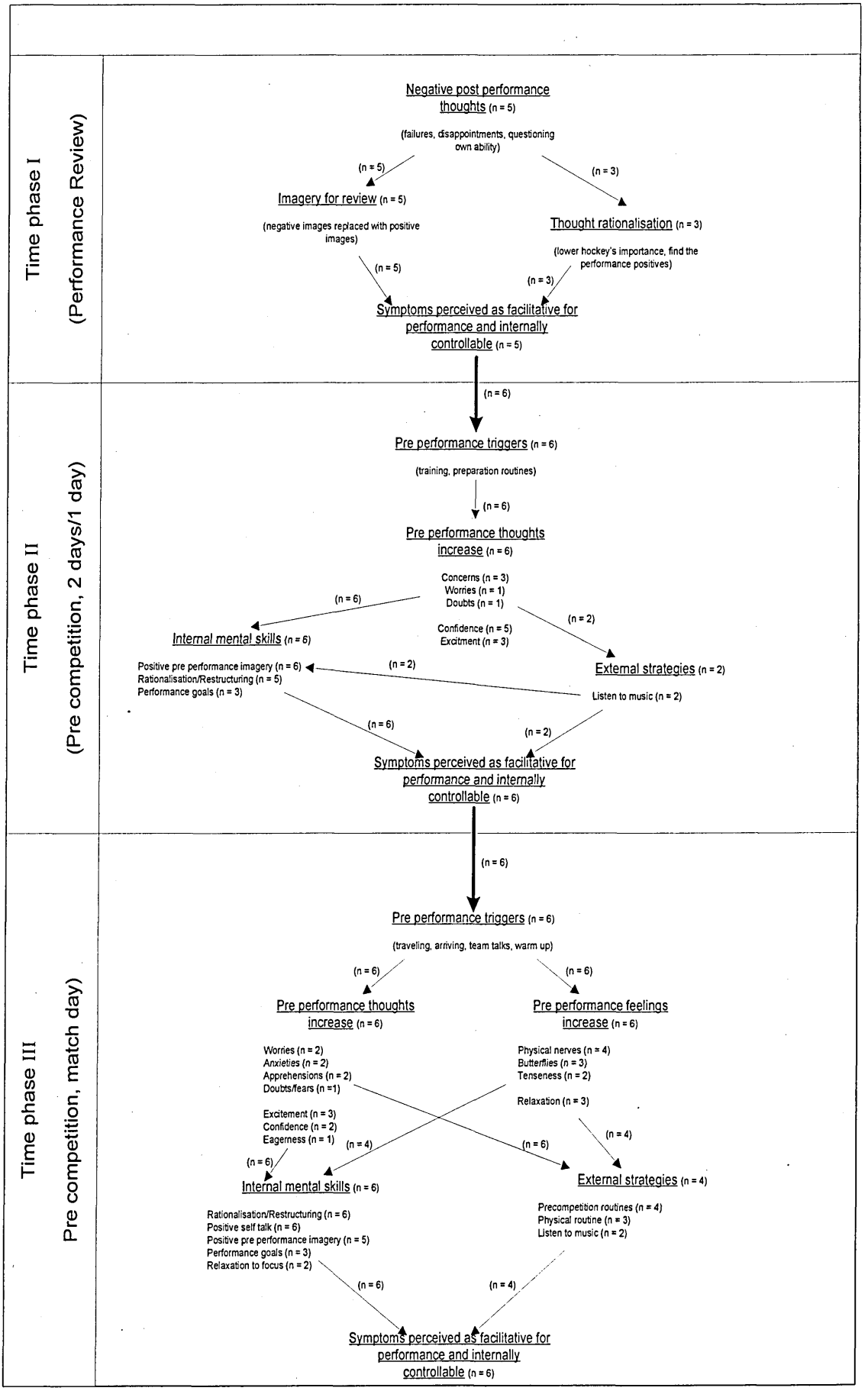

Figure 5.8 Composite Sequence Analysis: Symptoms and Strategy Use Over Time (Facilitators)

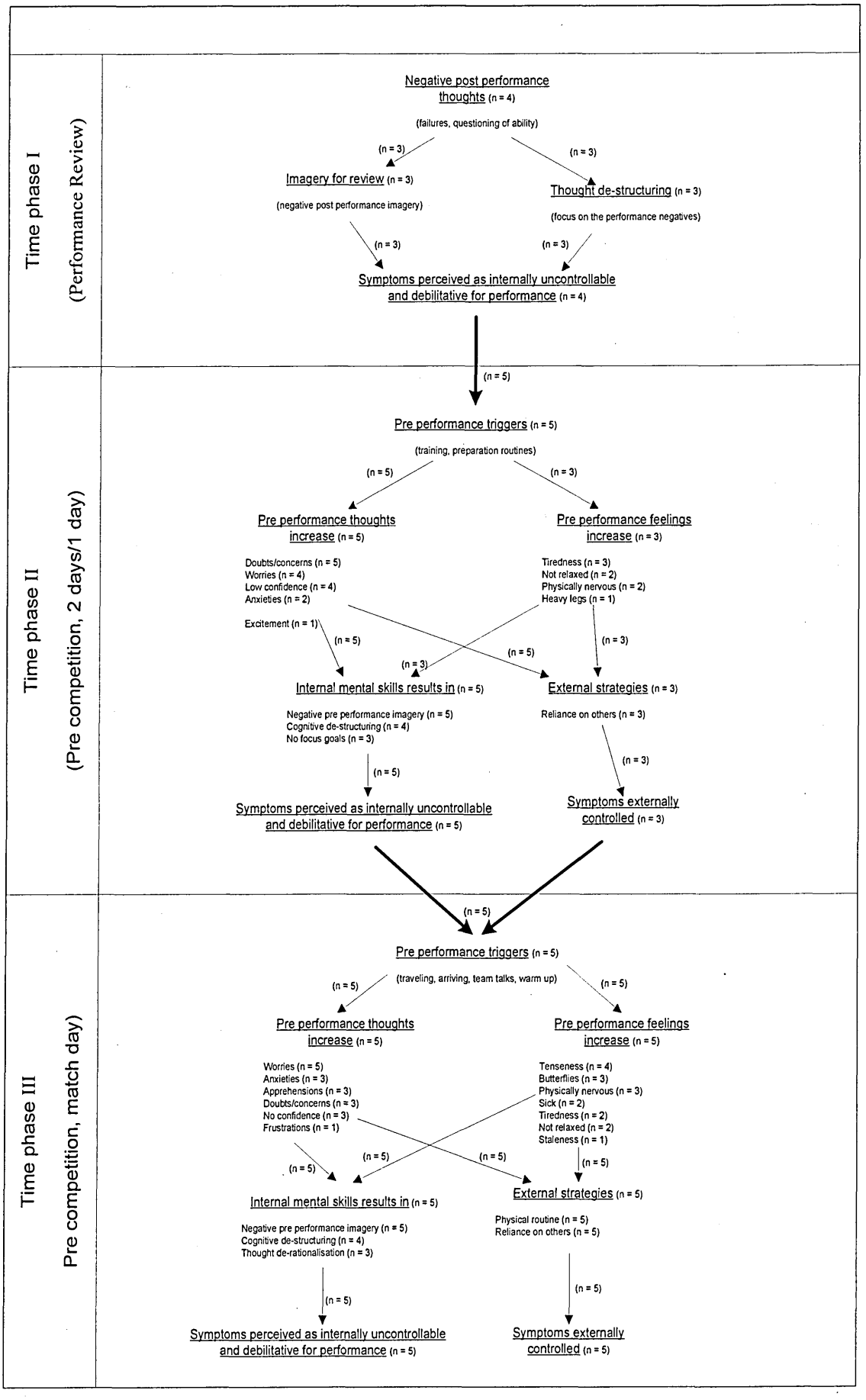

Figure 5.9 Composite Sequence Analysis: Symptoms and Strategy Use Over Time (Debilitators)

structuring and no focus goals. This led to a continued debilitative interpretation of pre-match symptoms. Additionally, the debilitators noted using the external strategy of reliance on others which resulted in an external control over negative symptoms.

During phase III of the pre-competition period, facilitators noted an increase in pre-performance thoughts and feelings triggered by the events of arriving at the competition venue, team talks and warm-ups. The facilitators utilised the internal psychological skills of positive self-talk, thought and feeling rationalisation/ restructuring, positive pre-performance imagery, performance goals and relaxation and the external strategies of pre-competition routines, physical routines and listening to music. The use of these skills led to a re-interpretation of negative symptoms as facilitative towards performance. In comparison, the debilitators noted a continued increase in negative pre-performance symptoms triggered by arriving at the competition venue, team talks and warm-ups. The attempted implementation of internal psychological skills for the debilitators resulted in the use of negative pre-performance imagery, cognitive de-structuring and thought de-rationalisation which led to a continued perception that pre-performance symptoms were debilitative towards future performance. Additionally, the debilitators noted using the external strategies of physical routines and reliance on others which resulted in an external control over negative pre-performance symptoms

5.5 DISCUSSION

The research question for this study emanated from the findings of study two, and previous temporal studies which recommend intervening at different pre-competition time periods but do not inform the applied psychologist of when, or with what to base such interventions on. Specifically, this study aimed to examine, at a qualitative level, the different symptoms experienced and the different psychological

strategies used by facilitators and debilitators during the preparation time leading up to competition. No previous research within sport psychology has addressed these issues within one study. Additionally, in order to aid recall and produce probes that were sensitive to the performer, a mixed method design utilising ESM in combination with retrospective semi-structured interviews was undertaken (cf. Csikszentmihalyi & Csikszentmihalyi, 1993; Voelkl & Nicholson, 1992), an approach previously unused in sport psychology research. This discussion briefly focuses on the ESM findings before examining the results derived from the semi-structured interviews and associated causal networks and composite sequence analyse.

5.51 ESM 'THOUGHTS' AND 'FEELINGS' ACROSS THE TEMPORAL PERIOD

As noted by Alliger and Williams (1993), Gauvin and Szabo (1992), and Van Eck et al. (1998), ESM data can act as significant findings in their own right. At the descriptive level, the facilitators consistently labelled their thoughts and feelings as more facilitative (positive) towards performance than the debilitators, and spent longer thinking about these labels during the time approaching competition. Conversely, the debilitators consistently labelled their thoughts and feelings as more debilitative towards performance than the facilitators, and spent longer attending to these symptoms as the competition approached. These findings support the preliminary 'feeling state' label research of Jones and Hanton (2001) who noted that facilitators identified more positive feeling state labels than the debilitators at times immediately before competition. The temporal nature of this study significantly advances these proposals into preparation time during the week leading up to competition. Further, inclusion of the percentage thinking time descriptor extends these findings into the frequency dimension of the response. Finally, the descriptive differences between the facilitators and debilitators

emanating from the idiographic thought and feeling labelling procedure support the nomothetic differences that emerged in study two. Specifically, in study two, facilitators noted higher levels of self-confidence, more positive interpretations of cognitive somatic symptoms, lower frequencies of cognitive symptoms and higher frequencies of self-confidence symptoms than debilitators during the time leading up to competition.

5.52 SEMI STRUCTURED INTERVIEWS: SYMPTOM RESPONSES AND PSYCHOLOGICAL STRATEGY USE IN THE PREPARATION TIME LEADING UP TO COMPETITION

It was the aim of the semi-structured interviews to examine the symptoms experienced, and psychological strategies used by debilitators and facilitators in the preparation time leading up to competition. The findings indicated elite female hockey players separated the preparation time for competition into three distinct phases. These included Phase I, a post-competition review phase (up to 2 days after competition), Phase II, pre-competition 2 to 1 day before the match and Phase III, pre-competition match day. These time scales, with the exception of Phase I, mirrored those identified in Hanton et al.'s. (2002) work, the only other research study to qualitatively examine temporal anxiety responses. However, the identification of Phase I in this study is understandable. This sample comprised elite National Premier League Hockey players who compete on a week by week basis during on season. Therefore, the temporal nature of moving from one game to the next in such a short space of time suggests a logical carry over effect in the symptom responses from one match to the next. This compares to the work of Hanton et al. (2002) who primarily interviewed elite individual sports participants (e.g., swimming, gymnastics, modern pentathlon) who did not compete on a week by week rolling programme.

The findings provide qualitative support to existing empirical based temporal research which suggests that symptom intensities and frequencies increase near competition (cf. Martens et al., 1990; Swain & Jones, 1993; studies one and two of this thesis). Specifically, for both the facilitators and debilitators the intensity and frequency of negative thoughts (i.e., cognitive symptoms) increased within two days of competition and showed further increases on match day, findings that support the results of study one and two. However, the point of onset for negative feelings (i.e., somatic symptoms), was inconsistent across both groups. Specifically, for debilitators, the intensity and frequency of negative feelings increased from within two days of competition, showing further increases on the day of competition. In comparison, the onset and increases in these negative feelings were only apparent on the day of competition for the facilitators. These findings suggest a greater sensitivity to somatic symptoms in the debilitators.

The actual symptoms that both the debilitators and facilitators experienced during each of the preparation phases for competition were similar as descriptors of thought and feeling states. The only notable differences were the use of more positive feeling state labels by the facilitators during phases II and III, and the use of more negative feeling state labels by the debilitators during phase III of the preparation period. Interestingly, these findings support the labels produced during the ESM phase of the data collection, and the feeling state research of Jones and Hanton (2001).

Turning to the main focus of the study, there appear to be differences in the psychological preparation routines of debilitators and facilitators during the time leading up to competition. During Phase I, both the facilitators and debilitators experienced post-performance negative thoughts as a result of reflecting on past performance. This reflection took the form of negative performance imagery (i.e., replaying performance errors). However, the facilitators appeared able to utilise further

imagery skills to replace these naturally occurring negative post-performance images with ones of similar game scenarios where performance outcome was positive. The source of these positive image replacements was derived from similar game scenarios, be it from the previous week's game or from earlier within the player's career. The use of imagery skills for such purposes has previously been noted in research with elite performers. Specifically, when examining the uses of imagery in elite gymnasts and canoeists, White and Hardy (1998) noted that canoeists tended to review slalom runs using imagery to 'see their mistakes'. Integrated into this routine was the use of corrective imagery through visualisation of a successful execution of the skill. Essentially, the canoeists were replaying their mistakes but then replacing these with 'restructured' positive performance images of the skill. The facilitators in this study appear to be using imagery skills in a similar fashion. In comparison, the debilitators did not posses the psychological skills to overcome these negative images, a situation which led to a continued replaying of negative post-performance images.

Additional skills employed by the facilitators included the rationalisation of negative post-performance thoughts. This compared to the thought processes of the debilitators who were not able to rationalise such negative performance thoughts at such times. The use of such psychological skills by the facilitators resulted in them being able to control their negative post-performance thoughts and re-interpret them as positive towards future performance. Conversely, the debilitators suggested experiencing ongoing negative thoughts as a result of replaying negative performance images and a cognitive de-structuring thought process. This suggested a lack of control over the negative symptoms and a continued debilitative interpretation of post-performance symptoms.

During Phase II of the temporal period, both the facilitators and debilitators experienced an increase in pre-performance negative symptoms primarily triggered by

group training times and preparation routines. However, for the debilitators this resulted in an onset and increase in both thoughts and feelings, in comparison, the facilitators only reported an increase in pre-competition based thoughts. This qualitative finding is of interest in relation to the main tenants of MAT and Martens et al.'s (1990) proposal that somatic anxiety should only increase immediately prior to the onset of competition, a finding that has received equivocal support in the field (see Section 2.532). Perhaps this qualitative distinction and the use of directional perceptions (i.e., facilitators and debilitators) as a moderator variable, partially explains the equivocal findings regarding the onset of somatic symptoms prior to competing.

During Phase II the facilitators utilised the psychological skills of positive pre-performance imagery, thought rationalisation and restructuring and performance goals as mechanisms to overcome negative symptom experiences. This compared to the psychological skills of the debilitators which included negative pre-performance imagery, cognitive de-structuring and no focus goals. The utilisation of these psychological skills at such times by the facilitators enabled them to control and reinterpret their negative symptoms as facilitative towards future performance. In comparison, the only mechanism available for the debilitators which resulted in a degree of control over negative symptoms was a reliance on others. The attempted implementation of psychological skills was undertaken by the debilitators, however, the results of these skills resulted in a somewhat negative skill outcome (i.e., negative performance imagery, cognitive de-structuring), which led to a continued debilitative interpretation of pre-competition symptoms.

Within Phase III, both the facilitators and debilitators reported experiencing an increase in negative pre-performance symptoms (thoughts and feelings) primarily triggered by arriving at the venue, changing, team talks and warm-ups. The facilitators implemented the internal psychological skills of thought rationalisation and

restructuring, positive self-talk, positive pre-performance imagery, performance goals and relaxation as mechanisms to overcome these symptoms. Additionally, the use of pre-competition routines, physical warm-ups and listening to music acted as external strategies for the facilitators. The use of these predominantly internal strategies allowed the facilitators to control the negative pre-match symptoms and reinterpret them as facilitative towards upcoming performance. In comparison, the debilitators used internal psychological process such as negative pre-performance imagery, cognitive de-structuring and thoughts de-rationalisation at such times. This negative psychological approach led to a continued sense of lack of control over the symptoms resulting in a continued negative interpretation in relation to their effect on upcoming performance. However, the debilitators were able to stabilise and externally control negative symptoms during Phase III by relying on others and using physical preparation routines.

Collectively, these findings suggest that the facilitators have a refined psychological skills programme that they can draw upon during the preparation times for competition. Further, it appears that as competition moves closer the comprehensiveness of this psychological skills programme increases in the range and number of skills implemented. Conversely, it appears that although the debilitators attempted to implement several psychological skills they did not have the ability to control these skills. This lack of internal control, in turn, led to a continued negative interpretation of pre-performance symptoms. In order to control these symptoms, the debilitators relied on external strategies.

This depth of investigation into the symptoms experienced, and the psychological strategies used by athletes during the preparation time for competition has not previously been covered in sport psychology, a strength of the study's approach. However, parallels can be drawn with associated research in the field. Specifically, the thoughts and feelings reported by the performers during the time leading up to

competition concur with those produced in Hanton et al.'s (2002) qualitative temporal work. Further, several of the strategies detailed by the performers in the lead up to competition related to those intimated to account for facilitative interpretations of pre-competition symptoms in the work of Hanton and Connaughton (2002) and Hanton and Jones (1999a). However, the proposal of these strategies by Hanton and colleagues took place in qualitative work orientated around a general approach to competition. This study's emphasis was on the preparation for competition, and specifically, the psychological skills used at certain pre-competition times that enabled a reinterpretation of negative symptoms.

5.6 SUMMARY

In summary, the ESM component of the present study has demonstrated that facilitators and debilitators interpret similar thought and feeling labels differently during the preparation time for competition. Specifically, facilitators interpreted more of their thoughts and feelings as positive towards performance and thought or experienced these labels for more time as competition approached. Conversely, debilitators interpreted more of their thoughts and feelings as negative towards performance and thought or experienced these labels for more time as competition neared.

The semi-structured interview portion of the study suggested that these different interpretations resulted from the use of different psychological preparation routines during the time leading up to competition. Specifically, the facilitators were able to use imagery based skills, thought rationalisation skills, cognitive restructuring skills, performance and process goal-setting skills, positive self-talk skills and relaxation skills at different times during the preparation time for competition to re-interpret negative symptoms as positive towards performance. In comparison, the debilitators attempted integration of psychological skills resulted in negative performance imagery, thought

de-rationalisation and cognitive de-structuring throughout the pre-competition time period which resulted in a continued debilitative interpretation of these symptoms in relation to their perceived effect on performance. These findings have clear implications for practising sport psychologists working with performers debilitated by their pre-competitive symptoms and the design and timing of intervention programmes during the preparation for competition. Specifically, the implementation of a multi-modal psychological skills programme with a design based on the timing and content of the preparation routine employed by the facilitators may lead to a more positive interpretation of negative pre-performance symptoms, and importantly, have a beneficial impact on sporting performance.

CHAPTER VI

STUDY FOUR

THE EFFECTS OF A PREPARATION BASED MULTIMODAL INTERVENTION PROGRAMME ON PRE-PERFORMANCE SYMPTOMS AND SPORTING PERFORMANCE

6.1 INTRODUCTION

Studies one, two and three highlighted the importance of considering the competitive anxiety dimensions of intensity, directional perceptions and frequency as temporal processes that fluctuate during preparation time for competition (cf. Cerin et al., 2000; Lazarus, 1999, 2000). Additionally, the results of study two suggested that symptom interpretations are a sensitive moderator over the intensity, direction and frequency of symptom responses during preparation time for competition. Specifically, in addition to interpreting their pre-performance symptoms differently, debilitators and facilitators experienced contrasting levels and frequencies of anxiety and confidence symptoms as competition approached. Study three, through qualitative methods, established that the mechanisms underpinning these variations resulted from different psychological preparation routines during key phases of the week preceding competition.

Although the time phases identified, and many of the triggers causing symptom occurrences and increases were the same across both groups, the facilitators utilised a series of refined psychological skills during the preparation time leading up to

competition. These routines enabled the facilitators to consistently re-interpret negative pre-performance symptoms so that they were perceived as internally controllable and facilitative towards future performance. In comparison, the debilitators routines showed an attempted integration of psychological skills, but detailed a lack of control over these skills. Specifically, all the internal psychological skills invoked by the debilitators did not produce positive effects, this lack of internal control resulted in a continued negative interpretation of pre-performance symptoms in relation to there perceived effect on performance.

Therefore, the aim of this final study of the thesis is to examine the effect of a multimodal intervention programme during the preparation time for competition in elite field-hockey players who exhibited a debilitative interpretation of their pre-performance anxiety symptoms. The pre-competition timing, content and structure of the intervention programme were devised based on the information and detail provided by the facilitators in study three. Specifically, the programme was separated into three phases, mirroring those reported in study three. Within these phases, a combination of imagery, restructuring, rationalisation, goal setting and self-talk skills were utilised by the debilitators. Finally, the success of the intervention programme will be assessed in relation to its effect on symptom responses, and in relation to competitive sporting performance utilising notational analysis methods. A single-subject staggered multiple baseline design was used to investigate these issues.

6.2 REVIEW OF LITERATURE

The review of literature provides information related to the psychological skills proposed for utilisation in the intervention programme. Specifically, the review

introduces the skills of imagery, goal setting, cognitive restructuring and thought/feeling rationalisation and self-talk. The review then provides an outline of intervention studies that have been conducted with performers who exhibit a debilitative interpretation of their pre-performance symptoms. The measurement of sporting performance in these studies is critiqued before finally, the review introduces the discipline of notational analysis as an objective measure of competitive performance.

6.21 IMAGERY

Imagery has been cited as one of the most prominent psychological skills used by competing athletes (Beauchamp, Bray, & Albinson, 2002; Hardy et al., 1996; White & Hardy, 1998; Martin, Moritz & Hall, 1999). The practical application of imagery has been suggested to include; improved performance of particular skills in both training and competition environments, assisted rehearsal of performance preparation plans, increased self-confidence and focused attention (Munroe, Giacobbi, Hall, & Weinberg, 2000). In addition to being a psychological skill often used by athletes, imagery has been the topic of extensive research interest within sport psychology. In a recent review, Martin et al. (1999) noted there had been over 200 published studies examining the relationship between mental imagery and sporting performance. A complete review of this imagery literature is beyond the scope of this thesis, and the interested reader is referred to the excellent review of Hall (2001). However, the following sections will discuss and outline areas of importance to this study. First, imagery is defined as a process and differentiated from mental rehearsal. Second, the most recent developments within imagery research (i.e., the introduction of Pavio's 1985 functional framework) will be outlined. Importantly, this outline will relate the separate imagery functions to the intervention design of this study, thus helping to provide a rationale for the content of the imagery routines.

6.211 IMAGERY DEFINED

Murphy (1994) noted that the terms 'imagery' and 'mental rehearsal' have been used interchangeably within the literature. Imagery differentiates from mental rehearsal through its potential inclusion of numerous portions of sensory information; a point emphasised through White and Hardys' (1998, p. 389) recent definition:

> "Imagery is an experience that mimics real experience. We can be aware of 'seeing' an image, feeling movements as an image, or experiencing an image of smells, tastes, or sounds without actually experiencing the real thing. Sometimes people find that it helps to close their eyes. It differs from dreams in that we are awake and conscious when we form an image"

Therefore, imagery has been described as a process which incorporates one or several 'sub-modalities' of sensory information including sight, sound, tactileness (feeling), smell and taste. Mental rehearsal on the other hand, has been defined as "...the employment of imagery to mentally practise an act" (Hardy et al., 1996, p. 28). Hence, mental practice can be described as a technique, where as imagery can be described as a process (cf. Hardy et al., 1996).

6.212 IMAGERY FUNCTIONS

Several authors have noted that imagery has the potential to provide multiple functions for the athlete (cf. Callow, Hardy, & Hall, 2001). The premise for these functions has been based on Pavio's (1985) analytical framework, which suggested imagery functions at two levels; namely, cognitive and/or motivational. Specifically, Pavio proposed the following five types of imagery: Cognitive General (CG), Cognitive Specific (CS), Motivational General-Mastery (MG-M), Motivational General-Arousal (MG-A), Motivational Specific (MS). A brief insight into the main aspects of each of these functions will be presented. Importantly, this insight summarises the effect of each function on performance, cognition modification (i.e., restructuring thoughts, feelings

and beliefs), and arousal and anxiety regulation, the main tenets of the intervention programme employed in this study.

6.2121 Cognitive General Imagery (CG)

CG imagery occurs when athletes image the correct execution of performance plans (Callow et al., 2001). Specifically, these plans can form rehearsals of entire game plans, strategies or patterns of play, and routines (Hall, 2001). For example, a hockey player could image the successful completion of a penalty corner routine, or image the period and pattern of play leading up to the scoring of a goal. Research has noted the positive effect of CG imagery on the performance of motor skills (e.g., White & Hardy, 1998; MacIntyre & Moran, 1996). However, although the performance effects of CG imagery have been documented, no research has examined its influence on cognition modification or arousal and anxiety symptom regulation.

6.2122 Cognitive Specific Imagery (CS)

CS imagery involves rehearsing the perfect execution of specific individual sporting skills (Callow et al., 2001). For example, a hockey player could image performing the specific skill of controlling the ball, or performing a defensive clear. The area of CS imagery has probably received the most attention within imagery function research. Several studies have noted the beneficial impact of imaging a specific skill on performance of that specific skill (e.g., Driskell, Cooper, & Moran, 1994; Hall, Schmidt, Durand, & Buckolze, 1994). This finding appears robust as it stretches across research assessing both fine and gross motor tasks (Martin et al., 1999).

Further, research has linked the positive effect of CS imagery to cognition modification (e.g., Garzara & Feltz, 1998; McKenzie & Howe, 1997). The underpinning mechanism of this link is unclear; however, it is thought that imaging successful

completion of the specific skill leads to enhanced task self-efficacy. This mechanism obviously has cross over effects to the functional properties of MG-M imagery, suggesting a possible combination of these imagery functions for cognition modification purposes (cf. Martin et al., 1999). Research assessing CS imageries impact on anxiety and arousal regulation remains in its infancy. However, early studies have noted CS imagery does not decrease arousal and/or competitive anxiety symptoms (Anshel & Wrisberg, 1993; White & Hardy, 1998). Possibly, the response propositions included in CS imagery are not sensitive enough to regulate arousal, unlike those associated with MG-A imagery (cf. Martin et al., 1999).

6.2123 Motivational General Mastery Imagery (MG-M)

MG-M imagery involves rehearsing staying focused when presented with performance-based problems (Callow et al., 2001). Additionally, Hall (2001) contended that MG-M imagery involves the athlete imaging performing in a confident manor. For example, a hockey player could image overcoming the challenging situation of overturning an early conceded goal; or at the individual level, image passing a defender they have had problems beating in the past. Research assessing the effects of MG-M imagery on performance remains in its infancy; however, early studies have noted MG-M has little positive effect on sporting performance (e.g., Lee, 1990).

In comparison, the cognition modification properties of MG-M imagery have been well researched. Early contentions suggested that imagery would be most beneficial to self-efficacy when it included images associated with success and perceived competence (i.e., MG-M imagery). These proposals have been supported in research across muscular endurance tasks (Feltz & Riessinger, 1990), and badminton (Callow et al., 2001). In short, those athletes using MG-M imagery showed higher levels of self-efficacy and/or self-confidence than their comparative control groups.

The effects of MG-M imagery on arousal and anxiety regulation appear less clear. Although sparse research evidence exists, early studies suggest that MG-M imagery has no beneficial impact over arousal or anxiety regulation (Carter & Kelly, 1997; Vodocz, Hall, & Moritz, 1997).

6.2134 Motivational General Arousal Imagery (MG-A)

MG-A imagery involves imaging the emotions that accompany competitive sport (Callow et al., 2001). This could involve a player imaging a favourite psyche up procedure, or imaging a relaxing situation to psyche themselves down. Essentially, the player uses MG-A imagery to help control their emotional state prior to competing.

The performance enhancing effects of MG-A imagery are suggested to be negligible. Specifically, Murphy, Woolfolk, and Budney (1988) found that MG-A imagery was ineffective at improving performance on a strength task. They concluded by suggesting MG-A imagery was unlikely to have any performance improving effect unless it was combined with CS imagery routines. In addition, no research evidence was found that investigated the cognition modification properties of MG-A imagery.

However, the arousal and anxiety regulation properties of MG-A imagery have been considered. Specifically, MG-A imagery has, with the appropriate response proposition, been shown to be capable of increasing arousal (Hecker & Kaczor, 1988), decreasing arousal (Hall et al., 1998; White & Hardy, 1998), and decreasing competitive anxiety (Vadocz et al., 1997).

6.2135 Motivational Specific Imagery (MS)

MS imagery is characterised by imaging achieving a specific performance goal (Callow et al., 2001). For example, a hockey player could rehearse winning the game, or being congratulated by the coach for a good personal performance. Effective MS imagery is proposed to result in cognition modification by enhancing a performers self-efficacy. Specifically, rehearsal of successful goal achievement results in favourable expectations of performance thus leading to increased self-efficacy (cf. Martin et al., 1999). Additionally, it has been proposed that MS imagery may influence cognitions related to effort as well as self-efficacy (cf. Martin et al., 1999). However, to date, research examining the effect of MS imagery on performance enhancement and arousal and/or anxiety regulation has remained uncovered.

6.2136 Summary of Imagery Functions

In essence, the imagery intervention constructed for this investigation requires structuring around functions that are most likely to improve sporting performance, modify cognitions, and regulate arousal or competitive anxiety symptoms. Therefore, the summary of research outlined above suggests the imagery intervention needs to include CS and CG imagery due to their ability to improve performance. Further, the imagery routines need to include reference to MG-M response propositions due to its cognition modification strengths. The use of CS imagery may assist in this process due to its links with perceived goal attainment and thus improved self-efficacy. Finally, it is important for the imagery routines to include MG-A response propositions due to its regulation properties over arousal and competitive anxiety symptoms. These functions, along with detail noted by the facilitators in study three will be utilised to construct the imagery intervention.

6.22 GOAL SETTING

Goal setting is a psychological skill commonly used by competing athletes (Burton, Naylor, & Holliday, 2001; Hardy et al., 1996). The origins for goal setting practice and research within sport psychology emanate from Locke and colleague's work within management and organisational environments (e.g., Locke & Latham, 1985; 1990; Locke, Shaw, Saari & Latham, 1981). Specifically, these authors noted that goal setting acted as a motivational approach to enhance performance in work settings. Subsequently, this process has been applied with varying degrees of success to the environment of competitive sport. A complete review of the goal setting literature and the developments within it are beyond the scope of this thesis, and the interested reader is referred to the recent review of Burton et al. (2001). However, the present review will define goal setting, and outline the main principles of practical applied goal setting related to the intervention structure of this study.

6.221 GOAL SETTING DEFINED

Locke et al. (1990) defined goal setting as "... what an individual is trying to accomplish; it is the object or result of an action" (p. 126). Although developed in organisational settings, this definition has been commonly adopted in many sport psychology texts (cf. Burton et al., 2001; Hardy et al., 1996). Descriptively, goals are suggested to have two primary motivational components; direction, and the amount or quality of the product (Burton et al., 2001). Direction refers to the choice of how and where the performer directs their effort, where as amount or quality refers to the minimal standard of performance that must be obtained. In summary, goals are suggested to be cognitive mechanisms that describe what the performer is aiming to achieve, essentially they are aims and objectives (Burton et al., 2001).

6.222 PRACTICAL APPLICATION OF GOAL SETTING

Related to the intervention of this study, knowledge of the practical application of goal setting and an insight into goal focus, and the distinction between outcome, performance and process goals needs is required (cf. Burton, 1989). Further, the notion of SMARTER goals and how these can be applied to the athlete requires attention (cf. Locke & Latham, 1985).

6.2221 Goal Focus

The primary distinction of goal focus was pioneered by Burton (1989) with the separation of goals into outcome and performance types. More recently, Kingston and Hardy (1994, 1997) have extended this distinction by separating performance goals into two separate categories; namely, performance and process goals.

Outcome goals are suggested to be product oriented, focusing on social comparison or object outcome (Burton, 1989). For example, an outcome goal for a hockey player would be to win the game. Although noted to increase motivation in the short-term, a purely outcome goal focus can result in negative performance issues. For example, Roberts (1986) noted that a long-term outcome goal focus can results in drop out; where as, Burton (1989) observed that outcome goals are associated with higher levels of competitive anxiety symptoms. These dysfunctional properties of outcome goals are suggested to rest with controllability of the end product; in that, the individual performer, especially in a team environment, has limited control over the end outcome of the result.

Performance goals are suggested to specify an end product of performance that is quantifiable, and can be obtained with relative independence to others (Burton, 1989). For example, a performance goal in a 200m athletics sprint race could be to complete the race in a specified time. The formation of performance goals in individual sports

such as athletics, swimming and cycling is a relatively straightforward task; the performance of the event can be compared to a known self-referenced comparison (i.e., a personal best time). The formation of performance goals in more open classification sports such as team games (i.e., soccer or field-hockey) can be a more challenging issue. However, areas such as volume percentage of possession maintained, or number of shots on target provide team games player with a self-referenced quantifiable goal. Performance goals are suggested to be more beneficial towards performance and create lower levels of competitive anxiety symptoms due to greater controllability of the goal by the individual performer (Burton, 1989; Hardy et al., 1996; Kingston & Hardy, 1997).

Process goals specify the processes the athlete must engage in while performing; traditionally these are characterised by reference to improving technique, and/or strategy (Burton, 2001; Kingston & Hardy, 1994, 1997). For example, the performer may have the goal to stay focused while competing, or alternatively, maintain a low body position through the ball in a hockey shot. Kingston and Hardy's (1994, 1997) reconceptualisation to include process goals has received support through their work. Specifically, process goals have appeared more effective at maintaining and enhancing concentration (Hardy & Nelson, 1988; Kingston & Hardy, 1997), enhancing self-efficacy (Kingston & Hardy, 1997), and improving control of cognitive anxiety symptoms (Kingston & Hardy, 1997; Kingston, Hardy, & Markland, 1992).

In summary of goal focus work, the above research suggests the structure of an goal setting intervention for this study should include performance and process goals. Specifically, these types of goals have been shown to be most effective at improving performance, modifying cognitions, and regulating arousal and competitive anxiety symptoms. These goal foci will be combined with the information provided by the facilitators in study three to construct the goal setting section of the intervention.

6.2222 SMARTER Goals

Based on the organisational work of Locke and Latham (1985, 1990) and Locke et al. (1981), practitioners in sport psychology have placed emphasis on setting 'SMARTER' goals (Bull, Albinson, & Shambrook, 1996). According to the acronym, goals should be specific, measurable, acceptable, realistic, time-phased, exciting, and recordable (Bull et al., 1996). Goals are required to be specific to ensure goal clarity to the performer; further, if they are specific the athlete will know when the goal has been achieved. Creating goals that are measurable ensures the performer can asses their progress towards achievement of the goal. Goals also need to be accepted by the performer and be realistic. These factors are related to two key areas within goal setting literature; namely the areas of goal difficulty and goal acceptance (Locke & Latham, 1990). Essentially, the set goal needs to be challenging to the performer, but not too unrealistic, this balance ensures maintenance of effort towards attaining the goal. Setting time-phased goals ensures the athlete has a target date or time by which the goal should be achieved. Providing a time frame ensures a point of reference towards goal achievement maintaining effort towards the goal. The goal also needs to excite the athlete, thus when accomplished the performer feels a sense of achievement. Finally, the goals need to be recorded or written down to ensure evaluation can occur. Although essentially described as motivational issues for the performer, these characteristics of goals are important in the context of this study. Specifically, utilising SMARTER goals optimises achievement of the goal for the athlete. Successful achievement of the goal leads to increases in the performers' self-efficacy or self-confidence which directly relate to the cognition modification processes the intervention programme of this study is aiming to achieve (cf. Burton et al., 2001).

6.2223 Summary of Practical Application of Goal Setting

Essentially, the goal setting programme formulated for the intervention of this study needs to maximise performance, modify negative cognitions, and regulate competitive anxiety symptoms. Therefore, synopsis of the above research suggests the goal setting programme should orientate around performance and process goal foci. This should maximise the possibility of performance improvement, provide greater control over negative pre-performance symptoms and maximise the performers' self-efficacy. The use of a SMARTER goal setting programme should ensure the performers commitment towards achieving the set goals. Finally, these goal setting principles will be combined with the information provided by the facilitators in study three to formulate this phase of the intervention programme.

6.23 COGNITIVE RESTRUCTURING AND THOUGHT/FEELING RATIONALISATION

As noted by Hardy et al. (1996) sport psychologists often advocate the procedures of cognitive restructuring and negative thought rationalisation to overcome negative pre-performance symptoms. Essentially, these psychological approaches are underpinned by the skill of self-talk[6.1], and are derived from cognitive approaches within clinical psychology and Ellis' (1962, 1970, 1994) cognitive theory of Rational Emotive Behavioural Therapy (REBT). According to Ellis' cognitive theory, people experience situations which lead to rationale and/or irrational or negative beliefs. These beliefs then lead to cognitive (i.e., thoughts), emotional (i.e., feelings), and behavioural consequences. Rational beliefs lead to functional consequences for the individual, where as irrational beliefs lead to dysfunctional consequences (David, Schnur, & Belloiu, 2002; Ellis, 1962, 1970, 1994). The premise of REBT involves individuals disputing

[6.1] View section 6.24 for a review of the psychological skill of self-talk.

irrational beliefs and assimilating rationale beliefs, this should in turn, realise a positive influence over their cognitive, emotional and behavioural responses restructuring or rationalising any negative symptoms they have experienced (David et al., 2002). To simplify this argument, and place it in the context of this study, the cognitive approach suggests a performers thoughts directly affect their feelings, which in turn affect the performers behaviour (i.e., performance, or preparation for performance). When these thoughts are negative or irrational, dysfunctional performance or preparation for performance consequences will arise. However, through the process of REBT these negative or irrational thoughts can be restructured to create rationale or restructured beliefs realising functional consequences for performance and performance preparation.

According to REBT, cognitive restructuring or rationalisation of irrational or negative thoughts occurs through a fundamental questioned base approach. Specifically, the first phase involves identifying the thought as an irrational and/or negative thought. To do this, REBT advocates asking the following questions: is my thinking based on fact?, does my thinking help me achieve my (sporting) goals?, and does my thinking help me feel positive(about my sporting performance)?[6.2]. Once identified as an irrational or negative thought, the individual is then asked to question the thought by providing examples of how it can be 'disputed'. This in turn leads to replacement of the irrational negative thought with one which is rationale in nature thus providing functional consequences for the individual.

Several variations to REBT have been proposed within sport psychology. For example, Meichenbaum (1973) outlined a technique labelled 'Self-Instructional Training' which focused on replacing anxiety-inducing thoughts with problem-focused self-talk. Further, Bunker, Williams, and Zinsser (1993) proposed the technique of 'Countering' as a technique to change negative self statements into positive ones.

[6.2] The parentheses included add emphasis to the sporting context in which REBT can be applied.

Although these processes are essentially modifications of Ellis' (1962, 1970, 1994) REBT, limited empirical research exists within sport psychology as to their effectiveness as a strategy. Recently, Ming and Martin (1996) provided support for the process of countering. Additionally, Hanton and Jones (1999b), Maynard and Cotton (1993), and Maynard et al. (1995b) have successfully integrated cognitive restructuring procedures within multimodal psychological interventions designed to improve performance and pre-performance psychological states immediately prior to competing.

6.231 Summary of Cognitive Restructuring and Thought Rationalisation

The cognitive restructuring and thought rationalisation programme required for the intervention in this study needs to maximise performance, modify negative cognitions, and regulate competitive anxiety symptoms. Therefore, summary of the above research suggests the programme should focus on the REBT approach to restructuring negative and irrational beliefs. This should optimise cognition modification for the debilitators and lead to functional performance and preparation for performance consequences for the performers. Additionally, the programme should incorporate elements of the cognitive restructuring interventions employed by Hanton and Jones (1999b), Maynard and Cotton (1993), and Maynard et al. (1995b) which have been specifically applied to sport settings. These principles will be combined with the information provided by the facilitators in study three to construct the cognitive restructuring and thought rationalisation portion of the intervention programme.

6.24 SELF-TALK[6.3]

Many anecdotal and observational examples exist of elite athletes talking to themselves during both practice and competition (cf. Landin & Hebert, 1999). However, in terms of effects on performance, the key aspect for the practising sport psychologist relates to how the athlete talks to themselves in order to maximise performance (Zinsser, Bunker, & Williams, 2001).

Sport psychologists tend to suggest that the content of self-talk should include positive rather than negative self-statements (Landin & Hebert, 1999; McPherson, 2000; Van Raalte, Brewer, Rivera, & Petitpas, 1994). Additionally, research suggests the content of self-talk should include reference to task relevant, technical based information which incorporates words of emotional meaning (Rushall, 1984; Rushall, Hall, Roux, Sasseville, & Rushall, 1988; Rogerson & Hycaiko, 2002). Finally, in order to maximise the utilisation of self-talk, Landin (1994) provided several guidelines regarding the cues athletes should use. Specifically, Landin proposed that the chosen words should be brief and phonetically simple, associated to elements of practical skills and where applicable, relate to the sequential timing of the task.

Research assessing the effects of self-talk on sports performance has supported the techniques application across a range of activities including: tennis (Defrancesco & Burke, 1997; Landin & Hebert, 1999; McPherson, 2000; Van Raalte et al., 1994; Weinberg, Grove, & Jackson, 1992; Weinberg & Jackson, 1990), figure skating (Ming & Martin, 1996; Palmer, 1992), basketball (Kendall, Hrycaiko, Martin, & Kendall, 1990), golf, (Krischenbaum, Owens, & Conner, 1998; Thomas & Fogerty, 1997), ice-hockey (Botterill, 1990; Halliwell, 1990; Rogerson & Hrycaiko, 2002), diving (Highlen & Bennet, 1983), wrestling (Highlen & Bennet, 1983), and endurance running

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[6.3] The reader is reminded of the use of self-talk as a cognitive restructuring and/or thought rationalisation procedure. Detail related to the use of self-talk in such ways will not be covered in this section, please refer to Section 6.23.

(Weinberg, Smith, Jackson, & Gould, 1984). Further, self-talk has been observed to aid the learning of sports skills, correct bad habits, help athletes prepare for competition, focus attention, create optimal pre-performance mood, and build confidence (Bunker et al., 1993).

However, although research has noted the multiple potential benefits of utilising self-talk the precise mechanisms that underpin these benefits remains unclear (Hardy et al., 1996). Several researchers have highlighted the positive influence of self-talk on self-efficacy and the related effects on self-confidence (Feltz & Riessinger, 1990; Hanton & Jones, 1999b; Zinsser, Bunker, & Williams, 2001), and anxiety control (Ellis, 1982; Hanton & Jones 1999b; Zinsser et al., 2001). Additionally, a small line of research has suggested self-talk assists performance through increasing the attentional control of the athlete, thus regulating concentration levels (Landin, 1994; Landin & Hebert, 1999).

6.241 Summary of Self-talk

The self-talk intervention required for this study needs to maximise performance, modify negative cognitions, and regulate competitive anxiety symptoms. Therefore, synopsis of the above research suggests the intervention should focus on positive self-statements that are related to field-hockey specific skills. Further, these statements should be phonetically simple and if possible, reflect the sequential timing and/or technical characteristics of field-hockey skills. These principles in conjunction with the information provided by the facilitators in study three will guide the structure and content of the self-talk intervention used in this study.

6.25 PSYCHOLOGICAL SKILLS INTERVENTIONS WITH ATHLETES WHO EXHIBIT A DEBILITATIVE INTERPRETATION OF THEIR ANXIETY SYMPTOMS.

Limited research attention has been devoted to assessing the efficacy of differing intervention strategies with performers who exhibit a debilitative interpretation of their pre-performance anxiety symptoms. In total, four published studies have examined such factors. Three of these were conducted by Maynard and associates and were underpinned by Morris et al.'s (1981) 'matching hypothesis'. In short, this proposal suggests that anxiety treatment packages should be designed around 'matching' the treatment to the most prominent form of anxiety experienced (i.e., cognitive versus somatic).

Maynard et al. (1995a) assessed the efficacy of a somatic intervention (applied relaxation) on the intensity and direction scores of soccer players debilitated by their pre-performance symptoms. Specifically, seventeen players completed the modified CSAI-2 prior to a competitive fixture. These seventeen were separated into intervention and control groups based on their somatic direction scores. The eight players who were most debilitated by their somatic anxiety symptoms formed the intervention group, whilst the remaining nine players comprised a control group. Following an eight-week period of applied relaxation, CSAI-2 scores were re-assessed. The intervention group showed significant decreases in cognitive and somatic anxiety intensity (16% and 31% respectively), and a significantly more facilitative interpretation of somatic anxiety symptoms following the programme. In comparison, no significant pre-post intervention changes were noted across anxiety symptoms in the control group. These findings led the authors to conclude support for the matching hypothesis and that reductions in state anxiety intensity would be evaluated as more facilitative towards performance.

In a second investigation, Maynard et al. (1995b) assessed the impact of a cognitive intervention strategy with semi-professional soccer players debilitated by either their cognitive or somatic anxiety symptoms. Following CSAI-2 completion, players were assigned to a cognitive debilitated ($N = 8$), somatic debilitated ($N = 8$), or a control group ($N = 8$)[6.4]. The cognitive debilitated and somatic debilitated groups received a cognitive positive thought control intervention over a 12-week period (cf. Suinn, 1987). The intervention comprised a schedule of meetings where the participants were taught thought stopping, negative counterstatement, and positive affirmation skills. CSAI-2 scores were reassessed at mid (6 weeks) and post intervention time periods along with measurements of soccer performance. Results indicated cognitive anxiety and somatic anxiety intensity decreased across both intervention groups, with a smaller rise being noted in the control group. Cognitive anxiety direction also changed over the intervention period. Specifically, cognitive anxiety symptoms were interpreted as 54.7% more facilitative in the group debilitated by their cognitive symptoms, and 34.1% more facilitative in the group debilitated by their somatic symptoms following the intervention. This pattern of findings was replicated for somatic anxiety direction between pre-post intervention time periods. The group debilitated by their cognitive anxiety symptoms interpreted their somatic symptoms as 23.4% more facilitative towards performance following intervention; where as, the group debilitated by their somatic anxiety symptoms noted a 49.7% increase in the facilitation of their somatic symptoms. The authors concluded the results provided partial support for the matching hypotheses.

In summary of these two studies, Maynard et al. (1998) suggested only partial support for the matching hypothesis existed due to 'cross-over' effects. Specifically, although the intervention programmes outlined above were 'matched' to one anxiety

[6.4] Players in the control group scored a facilitative score for either cognitive or somatic direction.

symptom (i.e., a cognitive or somatic intervention), cross over effects were noted in the other anxiety construct. This promoted these authors to contrast the efficacy of a 'unimodal-matched', 'unimodal unmatched' or 'multimodal' intervention package on the intensity and direction of pre-performance symptoms.

Using a matched pairs design, 44 athletes with debilitative interpretations of cognitive anxiety were assigned to a unimodal-matched ($N = 11$), unimodal-unmatched ($N = 11$), multimodal ($N = 11$) or control group ($N = 11$)[6.5]. Intensity and direction scores from the CSAI-2 were collected prior to, and following the six week intervention programme. Results indicated the unimodal-matched and the mulitmodal intervention programmes decreased cognitive anxiety intensity. Somatic anxiety and self-confidence intensity were decreased by the multimodal intervention only. For direction of responses, the unimodal-matched and multimodal intervention programmes increased facilitative interpretations of cognitive anxiety, the unimodal-unmatched and mulitmodal intervention increased facilitative interpretations of somatic anxiety, and the mulitimodal intervention increased facilitative interpretations of self-confidence. These findings led the authors to conclude that multimodal interventions appear the most robust design for overcoming negative pre-performance symptoms experienced by competing athletes.

Hanton and Jones (1999b) furthered these proposals when applying a more integrated multimodal intervention programme with swimmers debilitated by their pre-competitive anxiety symptoms. Using a single-subject staggered multiple baseline design, the multimodal intervention programme was constructed with particular reference to the skills and strategies facilitators had developed over their careers (cf. Hanton & Jones, 1999a). This culminated in an immediate pre-race routine being

[6.5] The unimodal-matched intervention comprised a positive thought control programme similar to that used by Maynard et al. (1995b). The unimodal-unmatched intervention comprised an applied relaxation programme similar to that used by Maynard et al. (1995a). The multimodal intervention combined the unimodal-matched and unimodal-unmatched intervention programmes.

formulated for the swimmers which focused on the psychological skills of goal setting, imagery and self-talk. The intervention was integrated in a staggered fashion with three participants through a 10-week race programme. The authors assessed the impact of the programme on the intensity and direction of competitive anxiety symptoms and on swimming performance via race time. In total, three swimmers received the intervention. General findings suggested cognitive and somatic anxiety intensity remained relatively stable pre and post intervention. In comparison, self-confidence intensities increased in all three participants following the intervention. For direction, the interpretation of cognitive and somatic anxiety became more facilitative across all three participants following the intervention programme. Additionally, following intervention, swimming time (i.e., personal best performance), improved by between 2.40% and 3.23%. Hanton and Jones (1999b) concluded that the intervention programme was successful in increasing the self-confidence levels of the swimmers and enabled the performers to reinterpret their pre-race symptoms as facilitative towards performance at times immediately before competition. Additionally, and important in the applied context, the multimodal intervention coincided with performance improvements for the swimmers.

6.251 Summary of Intervention Programmes with Athletes who Exhibit a Debilitative Interpretation of their Anxiety Symptoms

In summary, the findings of Maynard et al. (1998) and Hanton and Jones (1999b) indicated that multimodal interventions appear superior to matched programmes for increasing levels of self-confidence and maximising a facilitative interpretation of cognitive and somatic anxiety. However, in relation to several of the main tenets of this research programme these findings are incomplete. First, the impact of possible intervention programmes on the frequency of anxiety or confidence

symptoms has not been assessed. Second, the intervention programmes have not considered psychological preparation in the time periods leading up to a competitive event, they have focused on times immediately prior to competing. Finally, and an important implication for the athlete, coach and practising sport psychologist, limited attention has been accorded to the performance enhancing qualities of multimodal intervention programmes. Although, Hanton and Jones (1999b) assessed the effect of their multimodal intervention programme on performance this was concentrated in a closed skill classification sport (i.e., swimming). There is a need to extend this research into open based classification sports through the use of more sensitive performance based criteria. In fact, recent applied research has noted the lack of intervention research that has utilised sensitive performance measures within open based sport classifications (McPherson, 2000; Rogerson & Hrycaiko, 2002; Thelwell & Maynard, 2003).

6.26 MEASUREMENT OF SPORTING PERFROMANCE WITHIN INTERVENTION BASED SPORT PSYCHOLOGY STUDIES

Early attempts to measure sporting performance were characterised by the use of global performance measures such as win/loss and outcome of the event (Krane, 1992). More recently, research has questioned the sensitivity of this approach emphasising the need to adopt intra-individual performance measures within sport psychology research (e.g., Parfitt & Hardy, 1993; Parfitt, Jones, & Hardy, 1990). This criticism has also being levelled at applied research attempting to assess the efficacy intervention programmes on sports performance (cf. Kendall et al., 1990). Indeed, the point has been emphasised by those researchers interested in examining the performance enhancing qualities of sport psychology interventions in team based open sport classifications (McPherson, 2000; Rogerson & Hrycaiko, 2002; Thelwell & Maynard, 2003). In short, the analysis of individual performance in closed skill sports such as swimming can be

undertaken by utilising sensitive outcome measures such as race time (cf. Hanton & Jones, 1999b). Essentially, a swimmers performance is affected by their own efficiency. However, the sensitivity of such performance indicators in team based open classification sports becomes diminished. A team player can perform proficiently as an individual player, efficiently executing the range of skills required for their position, but still lose the game. Obviously, a situation at the other end of the spectrum can arise; the team player could have an (in-proficient) individual performance but be successful in the outcome of the match due the performance of his/her team-mates.

Attempts to overcome such short-comings in team based open classification intervention studies were pioneered by Kendall et al. (1990). Specifically, these authors developed a rating instrument to assess basketball performance across a range of six defensive skills. The scale required coaches to rate whether each defensive skill was executed correctly or incorrectly throughout the game. These data were assessed pre and post intervention using a single-subject design to examine the effectiveness of a self-talk intervention on performance.

Maynard et al. (1995 a, b) advanced these principles into the team based open skill classification of soccer when examining the effect of separate cognitive and somatic intervention packages on anxiety and performance. Specifically, these authors developed a performance rating scale originally developed from an Independent Professional Football Association coach which covered categories of decision making ability, typical physical skill ability, decision making performance, and physical skill performance. Coaches utilised a points based rating scale to assess the player's performance within each category at three time points during the 12 week intervention programme (weeks 1, 6, 12).

More recently, Thelwell and Maynard (2003) have utilised intraindividual performance criteria to assess the performance of cricketers pre, during, and post a

multimodal intervention programme designed to optimise repeatable good performance. Specifically, the authors used different measures for bowlers and batters. Bowlers were assessed across the variables of number of wickets taken per match, number of runs conceded per over, and strike rate (wickets taken per 100 hundred balls bowled). In comparison batters were assessed in relation to total runs scored per match, and number of runs scored per innings for every 100 balls received. Finally, continuing this line of performance classification indicators, Rogerson and Hyrcaiko (2002) utilised percentage shot save rate from total shots received to examine the effectiveness of a self-talk intervention on goal tending performance in ice-hockey.

In summary, the methods employed have realised a more sensitive intra-individual measurement of sporting performance during pre and post psychological skill intervention programmes. However, this author suggests that there still remain inaccuracies in relation to complete sporting performance. Specifically, the methods employed do not allow the full repertoire of performance classification, tactical classification and technical classification data to be assessed by the coach, athlete and sport psychologist. A more complete performance measure would involve the integration of another sport science discipline within research examining the efficacy of psychological skills interventions, namely, notational analysis.

6.27 NOTATIONAL ANALYSIS AS AN INDICATOR OF PERFORMANCE IN COMPETITIVE SPORT

Notational analysis has developed and advanced as a discipline over the last thirty years in line with the advances in the associated field of video and video-based technology. This review is based on the reviews of Hughes and Bartlett (2002) and Hughes and Franks (1997) and outlines the aims of notational analysis and provides an insight into the classifications within the design of notational analysis systems. Finally,

the review details the specific components required when developing and assessing performance indicators in competitive team based sports.

6.271 Aim of Notational Analysis and Classification of Competitive Sports

Hughes and Bartlett (2002) indicate that the aim of any notational analyst is to examine the performance of an individual, a constellation of individuals or whole teams across key performance indicators. In order to assist this process, notational analysts have separated competitive sport into three classifications (Read & Edwards, 1992). Specifically, these relate to net/wall games (e.g., tennis, squash), invasion games (e.g., rugby union, field-hockey), and striking and fielding games (e.g., cricket, baseball). This investigation is focused on field-hockey, therefore, the review concentrates on notational analysis systems within invasion games.

Hughes and Bartlett (2002) suggested the invasion game category can be sub-categorised into goal-throwing games, try-scoring games and goal striking games. As noted in Figure (6.1), field-hockey is classified as a goal striking game. Following classification of the competitive sport, Hughes and Bartlett (2002) and Hughes and Franks (1997) stated that in order to develop an accurate notation system the analyst needs to assess and develop the specific indicators that are associated with optimal performance in that sport.

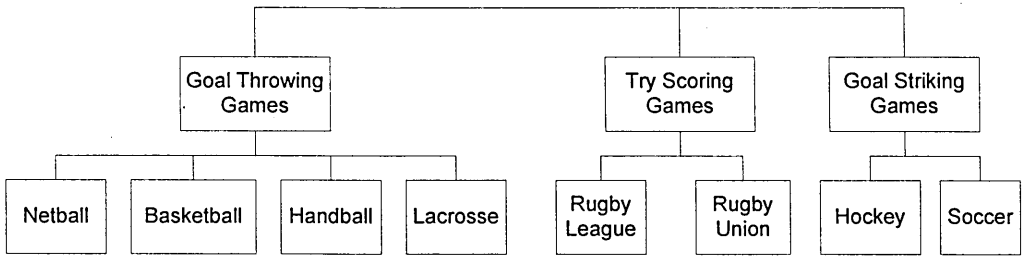

Figure 6.1: Categorisation of Invasion Games (Hughes & Bartlett, 2002).

6.272 Identification and Development of Notational Analysis Systems

Hughes and Bartlett (2002) and Hughes and Franks (1997) suggested the notation analyst should separate performance indicators across the four categories of match descriptors, biomechanical descriptors, tactical descriptors and technical descriptors depending on the nature of the performance analysis. Match descriptors are data that describe and define the nature of the overall match and relate to team based information. Biomechanical descriptors are data that relate to the speed of action and kinematics of the movement patterns. Tactical descriptors reflect the performance data relative to pace and fitness and target the technical strengths and weaknesses of the performer. Technical descriptors are data that outline the proficiency of the individual in relation to the key skills of performance in the chosen sport.

Essentially, it is the decision of the analyst, coach and player to decide the performance indicators needing analysis based on the questions the coach/player wishes to answer, or on the research question being posed by the analyst (Hughes & Bartlett, 2002). The research question for this investigation wishes to examine the effect of a psychological skills intervention on individual player performance in field-hockey. Hughes and Bartlett (2002) and Hughes and Franks (1997) suggested that technical and tactical descriptors provide the analyst with the pertinent information to assess an individual players performance in invasion-based goal striking games. Therefore, these descriptors will form the basis of the notation system in this investigation. Once the descriptor categories have been selected, the analyst must liaise with the coach and player to create the notation system. Essentially, this notation system should proved a map of the tactical and technical skills the analyst wishes to asses. Figure (6.2) provides an example of a notation system developed by Hughes and Franks (1997) to asses performance in basketball. This process will underpin the creation of the notation system utilised in the present study.

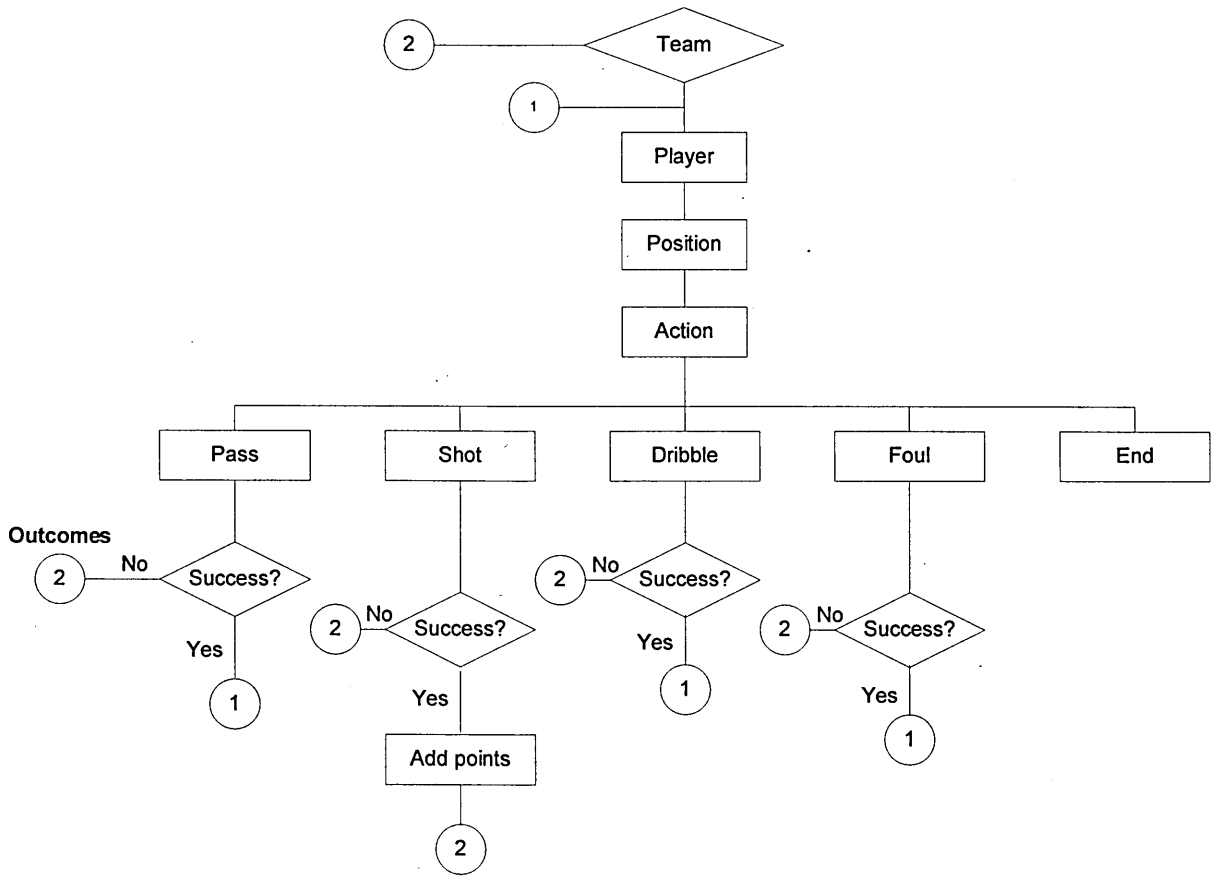

Figure 6.2: A Notation System for Basketball Performance (Hughes & Franks, 1997)

6.3 AIMS OF STUDY FOUR

Study four will aim to examine the effects of a multimodal intervention programme on the pre-competitive anxiety symptoms elite field hockey players experience during the preparation time leading up to competition. Specifically, a single-subject staggered multiple baseline design will be used to provide an intervention programme designed to restructure negative perceptions of cognitive and somatic anxiety symptoms, increase levels and frequencies of self-confidence symptoms and decrease the frequency of cognitive anxiety symptoms. These aims were based on the differences noted in the symptom responses displayed by the facilitators and debilitators throughout studies two and three. The structure, content and timing of the psychological skills intervention was based on the information provided by the facilitators in study three providing a detailed rationale for the timing and content of the intervention programme. A further aim of the study will be to integrate notational analysis as a sensitive intra-individual performance measure to examine the effects of the intervention on competitive performance.

6.31 HYPOTHESES

General hypotheses will be formulated based on the findings of study three, and it was expected that:-

(1) The intervention programme will restructure the interpretation of cognitive anxiety symptoms from debilitative to facilitative throughout the preparation time for competition.

(2) The intervention programme will restructure the interpretation of somatic anxiety symptoms from debilitative to facilitative throughout the preparation time for competition.

(3) The intervention programme will increase the intensity (levels) of self-confidence symptoms experienced throughout preparation time for competition.

(4) The intervention programme will increase the frequency of self-confidence symptoms experienced throughout preparation time for competition.

(5) The intervention programme will decrease the frequency of cognitive anxiety symptoms experienced throughout p reparation time for competition

6.4 METHOD

6.41 PARTICIPANT SELECTION CRITERIA

Following the procedures adopted in study three, debilitators were pre-selected for this study. Specifically, six first class Premier League women hockey players were selected as potential debilitators to be involved in the study. The selection procedure involved a two-stage process. First, the players completed the CTAI-2 (Albrecht & Feltz, 1987) modified to include scales accounting for intensity and direction (Jones & Swain, 1995). Following this completion, the four players recording debilitative profiles (view Table 6.1) were also asked to complete the CSAI-2 (Martens et al., 1990) modified to include scales for intensity and direction (Jones & Swain, 1992) 1 hour prior to a competitive Premier League fixture. Following this second line of pre-screening, three players were identified as the debilitators and hence selected to be involved in the intervention programme.

6.411 PARTICIPANTS

The three players who completed the pre-selection criteria were all female Premier League field hockey players (mean age of 26, SD = 3.5) two of which also competed at international level. The positions represented within the study were all outfield players and included one forward and two midfield players.

Table (6.1) Modified CTAI-2 for Potential Participants

Participant	CA-I	SA-I	CA-D	SA-D
1	22	15	-10	-6
2	18	16	-4	-8
3	31	19	-9	-7
4	27	23	-11	-2
5	25	27	-3	4
6	15	16	-1	1

Table (6.2) Modified CSAI-2 for Potential Participants

Participant	CA-I	SA-I	CA-D	SA-D
1	30	28	-11	-13
2	19	22	-5	-7
3	21	16	-8	-4
4	22	20	-1	3

6.42 INSTRUMENTATION

6.421 MODIFIED CTAI-2

The CTAI-2 utilised in this study was identical to that used in studies two and three. The reader is referred to Chapter IV, subsection 4.422 for information on the scale.

6.422 MODIFIED CSAI-2

The CSAI-2 used in this study was identical to that utilised in studies one, two and three. The reader is referred to Chapter III, subsection 3.421 for information on the inventory.

6.423 Education Booklet: Psychological Skills

Each participant was provided with an introductory education booklet which comprised background information on the psychological skills to be covered in the intervention phase[6.6]. Specifically, this booklet provided an insight into the psychological skills of imagery, cognitive restructuring thought/feeling rationalisation, goal setting and self-talk. A copy of the booklet can be viewed in Appendix 6.1.

6.424 Preparation Booklets

Preparation booklets were created related to each preparation phase of the intervention programme[6.7]. Each booklet required the player complete information which would underpin the psychological skills they would use within each specific phase of the intervention. The booklets can be viewed in Appendix 6.2. However, to aid the readability of the Chapter, greater detail of each booklet will be covered in the

[6.6] Please note this booklet was only provided once the player had entered into the intervention phase of the programme. No information on psychological skills was provided during the baseline phase of data collection.

intervention procedures section which provides the information justifying the intervention programme (view Section 6.433).

6.425 Social Validation Questionnaire

On completion of the intervention programme, participants completed a social validation questionnaire. This instrument was similar to that utilised by Pates, Maynard and Westbury (2001) and Thelwell and Maynard (2003) and was originally developed from the work of Kazdin (1982) and Kendall et al. (1990). Specifically, participants were asked answers to the following questions: (a) How important is psychological preparation to you in the time leading up to competition? with responses ranging from 1 (*Not at all important*) to 7 (*Extremely important*); (b) Do you consider the changes in performance to be significant? with responses ranging from 1 (*Not at all significant*) to 7 (*Extremely significant*); (c) How satisfied were you with the intervention programme? with responses ranging from 1 (*Not at all satisfied*) to 7 (*Extremely satisfied*); (d) Has the intervention proved useful for you? with responses ranging from 1 (*Not at all useful*) to 7 (*Extremely useful*).

6.426 A Notational Analysis System to Measure Field Hockey Performance

The notation system was developed through three separate stages in line with the recommendations of Hughes and Bartlett (2001) and Hughes and Franks (1997). The first phase involved the identification of possible performance indicators required within the notation system, the second phase involved piloting and refining the system realising the final phase of the finished system.

The aim of the notation system was to examine an individual field hockey player's performance. As noted by Hughes and Bartlett (2001) and Hughes and Franks

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[6.7] The preparation time phases developed for the intervention are justified in Section 6.433

(1997), analysis of individual performance in invasion based goal striking games should focus on both technical and tactical performance indicators. With this in mind, the author (i.e., the notational analyst) and two level three qualified National Hockey League coaches brainstormed and outlined the technical and tactical performance indicators related to field-hockey performance (Hughes & Bartlett, 2002). The coaches emphasised the need for the system to include an 'option' based approach to the utilisation of individual skills. Essentially, the analyst required a quantifiable measure of performance relating to positive and negative outcomes of individual skills (e.g., completing a successful pass). However, although the coaches agreed this was a viable measure of individual performance, they thought it important to include whether the option taken by the player was correct or incorrect. For example, one coach provided the following situation to emphasise this point. He suggested that conceding a foul could be perceived as a negative performance outcome indicator (i.e., the opposing team receive a free hit). However, he pointed out that in some instances the concession of the free hit would be the right option. For a defence, the concession allows the team to re-group and reform to defend in a structured manor when stretched. Additionally, the second coach pointed out that although the player could complete a successful pass thus achieving a positive outcome score, the actual pass chosen could have been the incorrect option. Therefore, it was decided that the notation system should include an output for correct and incorrect option choice and positive and negative performance scores.

Once the performance indicators were established, SIMI Scout Notation Analysis System was used as the template base programme to map the system. This realised a notation map that was piloted over five Premier League Hockey fixtures during the 2001-2002 season. The system was refined throughout these five matches in relation to the opinion of the analyst (primarily related to the logistics of analysing performance online) and the opinions of the coaches. This process realised an online

notation system underpinned by the SIMI Scout platform which analysed correct and incorrect performance options, and positive and negative performance outcomes for the individual hockey player. Figure 6.3 details the final map used in the system with the process of analysis tracked from top to bottom.

For actual online analysis of performance, option choice correctness was assessed both by the analyst and a level three qualified National Hockey League coach, a previous International player. The coach was used as the primary reference point for these option choices due to their experience in the sport of field-hockey.

6.43 STUDY DESIGN AND PROCEDURE

6.431 Single-Subject Designs

Several single-subject design possibilities are open to the experimental researcher (Robson, 1994). The simplest of these remains the AB design, labelled a two condition experiment. Specifically, the participant(s) receive no treatment in phase A (referred to as the baseline phase), and the treatment (i.e., intervention) during phase B. Essentially, the experimenter looks for a difference in the performance or behaviour variable between the baseline and treatment phase. However, AB designs suffer from 'validity threats' in relation to their strength as single-subject designs (Robson, 1994).

The use of ABA is suggested to improve these weaknesses by including a return, or reversal phase of the treatment. Essentially, in the second A phase the experimenter removes the treatment returning to baseline conditions. Subsequently, this return should result in a shift in performance or behaviour variables regressing to pre-intervention levels. Although this design removes the problems associated with simple AB designs, there are several ethical problems connected with ABA designs particularly when implemented in applied settings (Robson, 1994). First, the ethicality of removing a

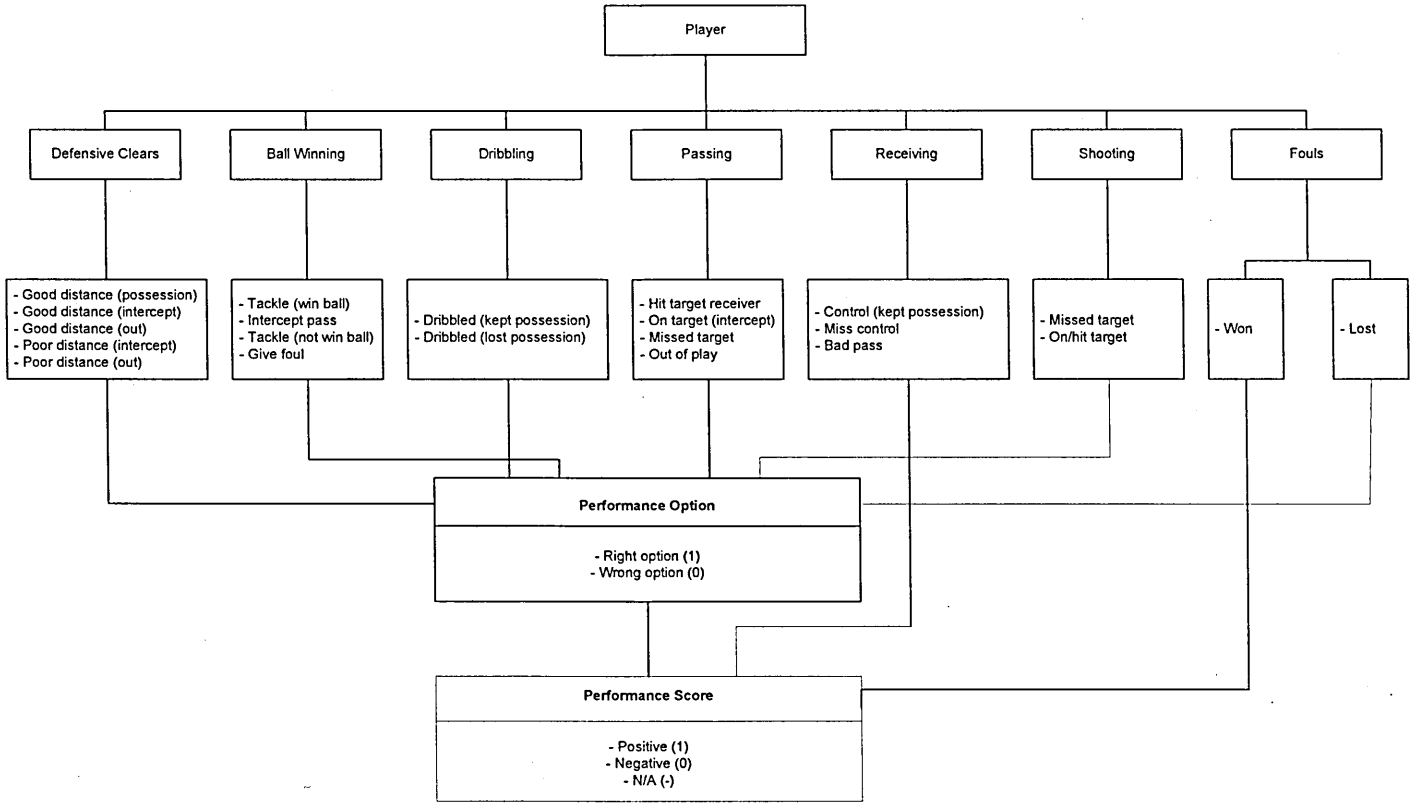

Figure 6.3: A Notation System for Field Hockey Performance

potentially performance enhancing treatment in a performance enhancing environment should be questioned by any practitioner. Second, if performance or behaviour improves following treatment, there is no guarantee it will return to previous baseline levels once the treatment is withdrawn, i.e., the changes may be long term (Robson, 1994). These problems are also associated with ABAB designs available to the single-subject design experimenter.

The weaknesses associated with ABA and ABAB designs can the overcome by utilising multiple-baseline single-subject staggered designs (Robson, 1994). This approach involves the application of the treatment at different time points within the baseline condition. If the performance or behavioural variables change as a result of the intervention and there are no changes in other conditions at that time then there remains a strong case that causality of the treatment on performance or behaviour can be inferred (Robson, 1994). Three types of staggered design exist; across behaviour involves collecting data across baselines of behaviour or performance for one individual, across settings collects data on one specific behaviour for one individual in different settings, and across subjects which involves collecting data across a number of participants on one behaviour or performance variable. The across subjects design is suggested to be the most useful in applied sport psychology and has been employed by many researchers examining intervention effects (e.g., Callow et al., 2001; Hanton & Jones, 1999b, Pates et al., 2001).

The use of staggered designs allows the researcher to introduce the treatment at differing stages across the participants. This stagger is suggested to add control to the design, in that if changes in performance or behavioural variables are noted across the participants across the stagger then the strength of the treatment effect will be enhanced. Further, the use of the stagger removes the need for a control participant (Robson, 1994).

6.432 Experimental Procedure

The intervention was introduced to the participants across a 10 match National Hockey League Premiership programme. The intervention was introduced using a staggered design with participants 1, 2 and 3 receiving the intervention after matches 4, 5 and 6 respectively (view Figure 6.4). The decision to introduce the intervention was based on the stability of the competitive anxiety direction scores (i.e., the maintenance of a debilitative profile), the need to stagger the design for experimental control, and for the convenience of the applied sport psychologist (i.e., this researcher) working with three performers. Prior to each competitive match in both the baseline and treatment phase, each player completed the CSAI-2 (Martens et al., 1990) modified to include scales for direction (Jones & Swain, 1992) and frequency (Swain & Jones, 1993) at four pre-competition preparation times. These preparation phases comprised 6 days, 2 days, 1 day and 1 hour pre-competition, mirroring those utilised in study two. Performance information in the form of notational analysis data was collected for each player for each game pre and post intervention. Data were notated online using the devised system for first half performances only. This totalled a 35 minute period of notation for each performer across each game. The reason to only collect data from the first half was based on the content and design of the intervention programme. Specifically, the intervention was designed to aid performance preparation, therefore the researcher perceived that first half performance would be affected to a greater extent. Second half performance was more likely affected by situations and experiences ongoing 'in game' in comparison to the effect of psychological preparation routines utilised prior to competing. In order to maintain ecological validity, both home and away fixtures were included in the 10 game series. Specifically, 6 home games and 4 away games were

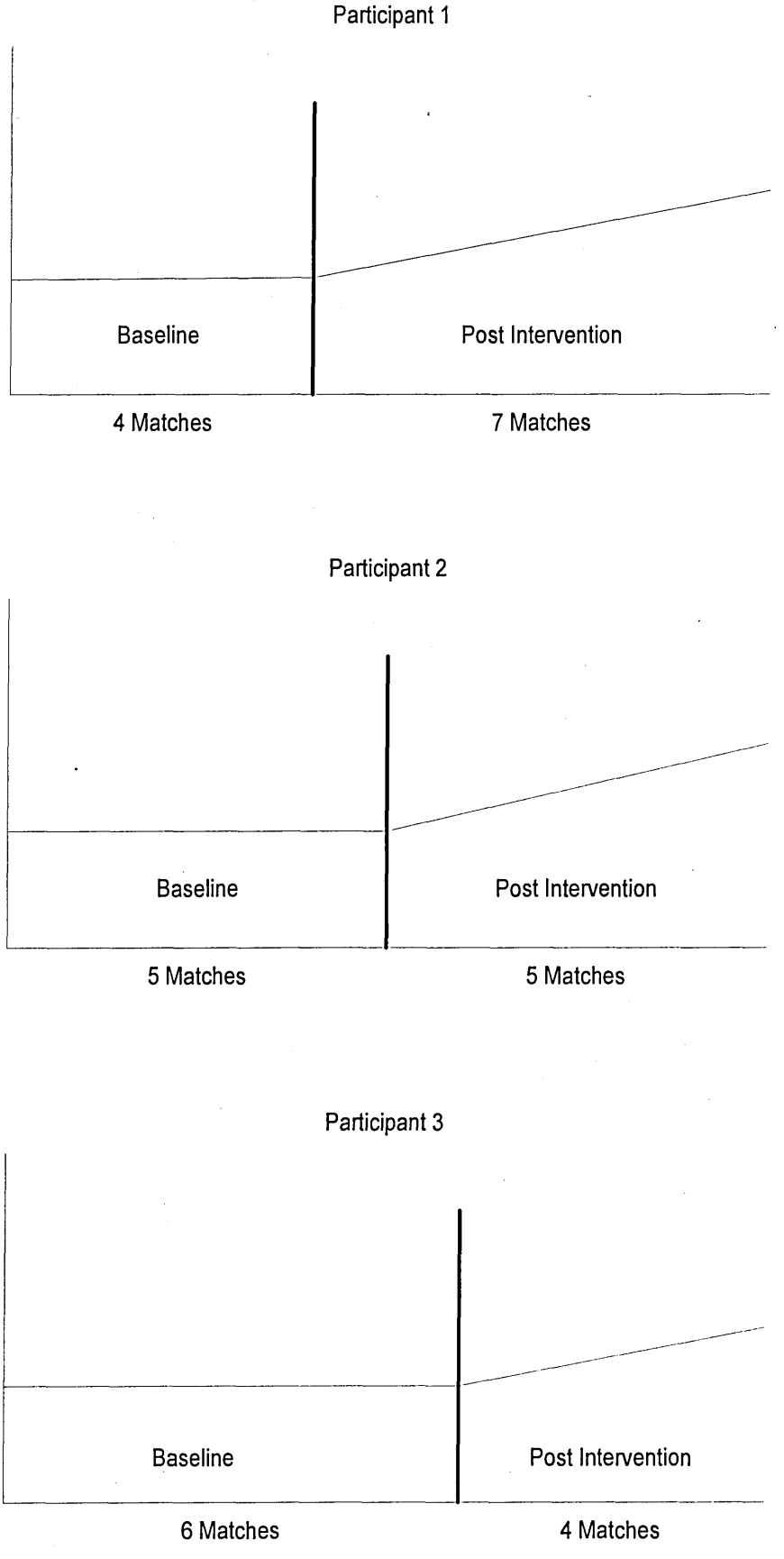

Figure 6.4: Staggered Single-Subject Multiple Baseline Design Used in Study 4

included, with each participant having a minimum of one away fixture in both pre and post intervention phases.

6.433 Intervention Procedure

The intervention programme was provided to the participants across three pre-competition preparation time phases. These three phases were based on a rolling cycle and covered the 7 days between competitive performances as contained in the fixture calendar of the National Premier League (i.e., Saturday to Saturday performance preparation time). Phase I, covered a post match review of previous performance and stretched from Saturday to Monday (i.e., 7 to 5 days preceding next performance). Phase II covered the preparation phases of two and one days pre-competition and stretched from Thursday to Friday. Phase III covered the preparation phase of match day, and included the Saturday of the match[6.8]. Within each Phase of the intervention, a two stage approach was taken. First, 'Preparation Booklets' were produced for participants to record information related to their experiences of competition or preparation for competition within that Phase. Second, 'Psychological Skills Booklets' were created which underpinned the one-on-one consultation sessions conducted with each player[6.9]. Therefore, the whole intervention programme was separated into several phases and Figure 6.5 provides a diagrammatic representation of the structure and a brief insight into the psychological skills covered in each phase. All intervention sessions were conducted by the author, a British Association of Sport and Exercise Sciences accredited Sport Psychologist (Support).

[6.8] These three distinct pre-competition time phases resulted from the preparation phases identified in study three. Please refer to Sections 5.421, 5.422 and 5.423 and Figures 5.1 to 5.6 in Chapter V.

[6.9] The 'Preparation Booklets' and 'Psychological Skills Booklets' for each preparation phase and one on one consultation are located in Appendix 6.2 and 6.3 respectively.

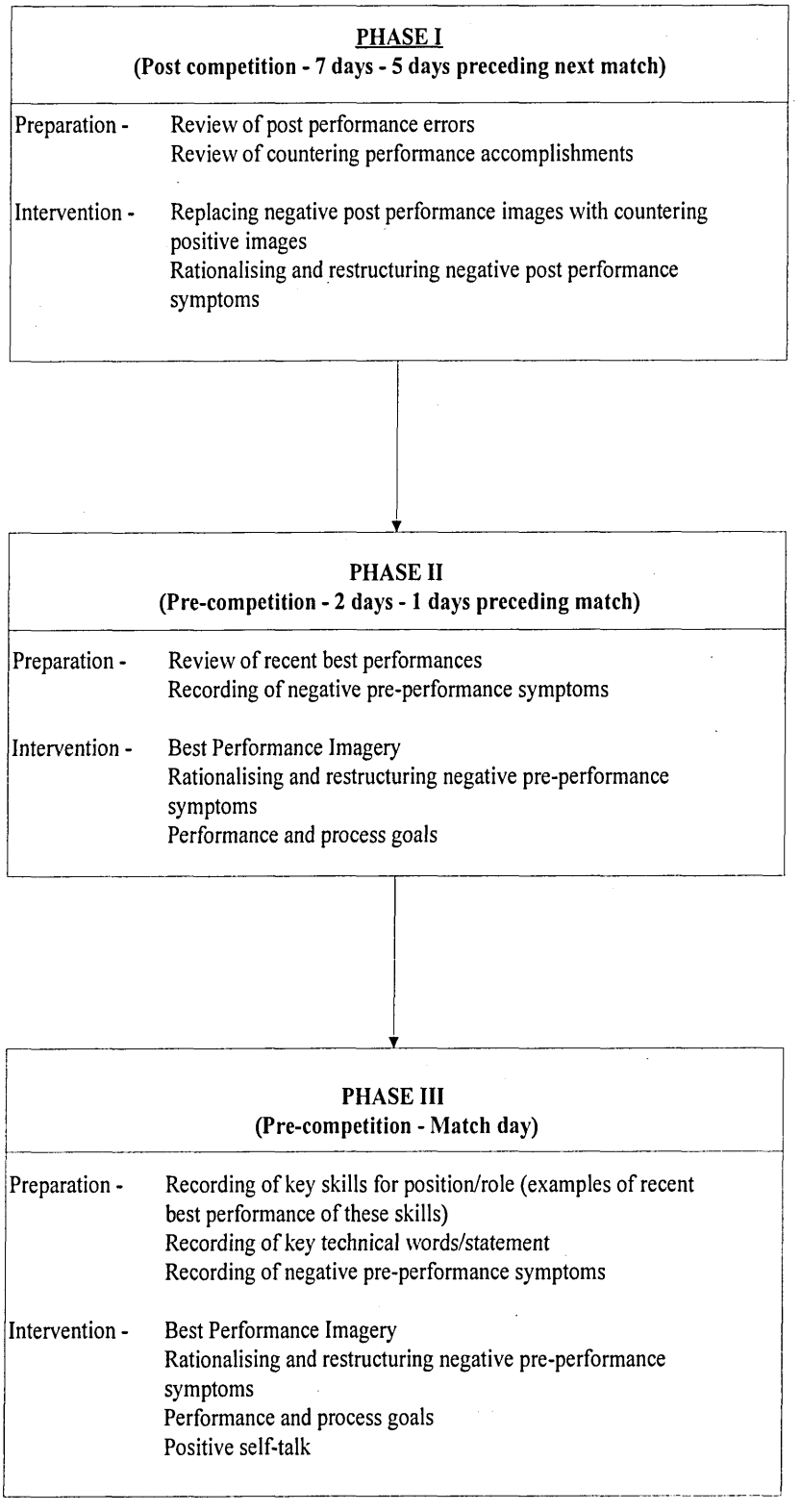

Figure 6.5: Stages and Content of the Intervention Programme

6.4331 Intervention: Phase I

The psychological skills utilised in Phase I of the intervention programme included imagery based skills and thought and feeling rationalisation and restructuring skills[6.10]. The actual consultation with each participant took place on the Monday following performance on the preceding Saturday.

6.43311 Imagery Skills

The imagery intervention during Phase I was structured around reviewing post performance negatives/performance errors and replacing these with images of a more positive or successful nature[6.11]. Therefore, the preparation booklet asked each participant to review any negative performance outcomes or performance errors they had personally conducted in their previous match. Additionally, each participant was asked to record any positive performance outcomes that could counter their negative performance errors. For example, if the participant had recorded a bad pass to a certain team mate as a negative performance error, they were asked to recount a successful pass made during the game to that same team mate.

During the one on one consultation session the content of the participants' preparation booklet was discussed. Specifically, of the examples provided one situation of a performance negative and a countering performance positive was chosen to create an imagery routine. A generic imagery script was produced to underpin the imagery intervention within Phase I; however, specific response propositions and information related to each participant's individual experiences were inserted. Each imagery session was underpinned by a progressive muscular applied relaxation programme which formed the introduction to the imagery script (cf. Ost, Jerremalm, & Johansson, 1988;

[6.10] The implementation of these skills resulted from the skills and strategies identified by the facilitators in study three. Please refer to Section 5.421 and Figure 5.2 in Chapter V.

[6.11] This structure was based on the imagery skills used by the facilitators during Phase I. Please refer to Section 5.421 and Figure 5.2 in Chapter V.

Maynard et al., 1998). The imagery script first asked participants to replay and recount the negative post performance error they had recorded. Response propositions emanating from the participants 'Preparation Booklet' were used by the consultant to add clarity to the images. Additionally, whilst imaging, the participants were asked to recount the thoughts and feelings associated with this image. In the second phase of the imagery intervention, each participant was asked to replay the positive performance scenario that would counter their negative/performance error based image. Response propositions were again provided by the consultant based on the information provided by the participant in the 'Preparation Booklet'. Further, the participants were asked to recount the thoughts and feelings associated with this positive performance scenario.

If necessary, this whole procedure was repeated in the one-on-one consultation to provide the participant with a further experience of the imagery routine. Throughout the positive imagery replacement section, the participants were provided with response propositions related to internal and external imagery perspectives, the temporal speed of the image (i.e., fast and slow), emphasis of image vividness, controllability of the image, successful execution of the skill and the importance of replacing negative images and the associated thought and feelings with positive performance accomplishments. Each full imagery session (including the progressive muscular relaxation component) was tape recorded by the consultant, this tape was passed on to the participant and utilised as a practice exemplar for the imagery routine for this Phase of the intervention programme. It was recommended that the participants practise these imagery based skills at least three times during Phase I of the preparation period, and they were actively encouraged to replace naturally occurring negative images with countering positive accomplishment scenarios.

6.43312 Thought and Feeling Rationalisation and Restructuring Skills

The thought and feeling rationalisation and restructuring programme during Phase I was based around overcoming negative post performance based symptoms[6.12]. The preparation booklet asked the participants to record the negative thoughts and feelings they associated with performance error based scenarios. Additionally, the negative thoughts and feelings recalled during the negative imagery condition within the imagery intervention consultation were used as points of reference within this section. Once these symptoms were identified, the participants were taken through a REBT session in line with the recommendations of Ellis' (1962, 1970, 1994). Specifically, the participant was asked to apply the fundamental questions of REBT to each negative thought or feeling they recorded (see Section 6.23). Following this, they were asked to 'dispute' the thought or feeling and replace it with a more rational thought. This process provided the formula through which participants were instructed to rationalise/restructure negative post performance symptoms.

To facilitate this process the participants were provided with a composite list of negative post performance symptoms with a restructured statement as a positive countering thought. Additionally, the participants recorded the rationalised/restructured thoughts they had formulated in the one on one consultation used to replace their naturally occurring negative post performance symptoms. The participants were provided with a copy of these as examples of rationalised/restructured thoughts and feelings they had experienced in Phase I of the preparation period.

6.4332 Intervention: Phase II

The psychological skills utilised during Phase II of the intervention programme included imagery based skills, thought and feeling rationalisation and restructuring

[6.12] This structure was based on the symptom rationalisation skills used by the facilitators during Phase I of the preparation period. Please refer to Section 5.421 and Figure 5.2 in Chapter V.

skills and goal setting skills[6.13]. The actual one on one consultation with each participant took place on the Friday preceding competition on the forthcoming Saturday.

6.43321 Imagery Skills

The imagery intervention during Phase II was structured around reviewing previous best performance images[6.14]. Therefore, the preparation booklet associated with Phase II asked each participant to record examples of their best performance (if possible, the players were asked to record recent best performances). Specific detail requested included information about the game (i.e., opposition), venue (i.e., home/away, the quality of performance (i.e., what they did well, for example specific skills) and the symptoms (i.e., thoughts and feelings) they associated with that best performance. Each player was asked to provide three examples of different game scenarios they considered reflected their best performance.

During the one-on-one consultation the information provided in the preparation booklet was discussed and two specific examples from the booklet were chosen to utilise as best performance imagery routines. A generic best performance imagery review script was created to underpin the routine in this phase within which specific response propositions were included related to the information provided by each participant in the preparation booklet. The imagery routine was preceded by the same progressive muscular applied relaxation programme utilised during Phase I of the intervention programme. The imagery script first asked the participant to reply one example they had identified and this process was repeated using the second example selected by the participant. Throughout both imagery routines, response propositions relating to imagery perspective, temporal speed, vividness, controllability, positive

[6.13] The implementation of these skills resulted from the skills and strategies identified by the facilitators in study three for this preparation Phase. Please refer to Section 5.422 and Figure 5.4 in Chapter V.

[6.14] The structure for this imagery intervention was based on the imagery routines utilised by the facilitators during Phase II of the preparation period. Please refer to Section 5.422 and Figure 5.4 in Chapter V.

performance, and the thoughts and feelings they associated to positive performance were included. As in Phase I, the whole of the imagery consultation was tape recorded and provided to each participant as a practice example of best performance imagery. It was recommended that the participants practise these imagery routines at least three times during Phase II of the preparation period, utilising different best performances as the content of the image.

6.43322 Thought and Feeling Rationalisation and Restructuring Skills

The thought and feeling rationalisation and restructuring programme for Phase II of the preparation period was based on overcoming and replacing negative pre-performance symptoms[6.15]. The preparation booklet asked each participant to record the negative thoughts and feelings they experienced during Phase II of the preparation period. These symptoms were discussed and restructured in the one on one consultation using the same methods adopted in Phase I (refer to Section 6.43312).

6.43323 Goal Setting Skills

The goal setting programme for Phase II of the preparation period was based on providing each performer with individual performance and process goals[6.16]. Essentially, the goal setting session formed an educational perspective and as such provided information on goal types and best practice when setting goals. The session culminated with each participant setting a combination of three personal performance or process goals. These goals were recorded for the performer on cue cards and subsequently laminated. Each player was asked to refer to the goals during Phase II to

[6.15] The implementation of these skills resulted from the skills and strategies identified by the facilitators in study three for this preparation Phase. Please refer to Section 5.422 and Figure 5.4 in Chapter V.

[6.16] The implementation of these skills resulted from the skills and strategies identified by the facilitators in study three for this preparation Phase. Please refer to Section 5.422 and Figure 5.4 in Chapter V. It is important to note that although outcome goals were not set at the individual level (as a result of controllability issues etc) the sport psychologist did carryout a team goal setting programme with the whole hockey squad. The content of this session focused on outcome goals for the team, therefore each participant referred to these goals as a point of reference for outcome goals. This related to Hardy's (1997) belief that performers should include reference to outcome goals within any applied goal setting programme.

remind them of their content and to try and stimulate a performance/process goal focus. Finally, the goals were subject to review following the culmination of the 10 week intervention programme.

6.4333 Intervention: Phase III

The psychological skills utilised during Phase III of the intervention programme included imagery based skills, thought and feeling rationalisation and restructuring skills, goal setting skills and self-talk skills[6.17]. The actual one on one consultation with each athlete took place on the morning of the match day, at least four hours prior to start time.

6.43331 Imagery Skills

The imagery intervention during Phase III of the preparation period was based around reviewing positive performances. However, the imagery routine during this phase differed slightly in relation to the best performance imagery routine used in Phase II. Specifically, the facilitators in study three noted that time pressures and certain environmental conditions resulted in an imagery routine with specific characteristics. The routines utilised focused on reviewing key positional skills and relied on quiet environments (e.g., travel time, pre-match meet time or team talk time) for optimal performance[6.18]. Therefore, the preparation booklet associated with Phase III asked each participant to record the essential skills for their position or role in key set plays (e.g., at penalty corner strikes/routines), and to record examples of recent positive performance of these skills. Specific detail requested regarding these skills included information about the game (i.e., opponents), venue (i.e., home or away), which skill/skills was/were involved, the quality of performance (i.e., what made it a good example of that skill)

[6.17] The implementation of these skills resulted from the skills and strategies identified by the facilitators in study three for this preparation Phase. Please refer to Section 5.523 and Figure 5.6 in Chapter V.

and the symptoms (i.e., thoughts and feelings) they associated with that positive performance. Each player was asked to provide a minimum of five examples of different skills they perceived were key to their position/role.

During the one on one consultation, the information provided in the preparation booklet was discussed and three specific examples were chosen to utilise in the imagery routine. A generic positive pre-performance imagery script was created to underpin the routine for Phase III within which specific response propositions were included related to the information provided by each player. Due to the time constraints inherent within this phase of the preparation period, the imagery routine for Phase III was not underpinned by a progressive muscular applied relaxation programme. However, the brief physical relaxation procedure of centering provided a framework to internalise the athletes' attention and relax them prior to the routine (Hardy & Fazey, 1990; Maynard, 1998). The imagery script first asked the participant to replay one key skill they had identified and specific response propositions from the preparation booklet were given to add clarity to the routine. This process was then repeated using the additional skill examples provided by the participant.

Each imagery routine was designed to replay one specific skill and be completed in a short-space of time due to the time constraints within Phase III. Throughout all pre-performance positive imagery routines the participants were provided with response propositions. However, due to the time constraints involved, the content of these propositions focused on positive execution of the skill, imagery perspective and the positive thoughts and feelings associated with successful completion. Further, these imagery routines were not tape recorded due to the logistics of participants utilising playing devices at times close to competition. However, based on the findings of study three, the participants were instructed to utilise the brief positive pre-performance

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[6.18] This specific structure to the positive pre-performance imagery routine was based on the imagery skills used by the facilitators during Phase III. Please refer to Section 5.423 and Figure 5.6 in Chapter V.

imagery routines at appropriate quiet times during match day preparation. Times that were emphasised included travel time to the competition venue, meet times prior to changing and during collective team talks.

6.43332 Thought and Feeling Rationalisation and Restructuring Skills

The thought and feelings rationalisation and restructuring programme for Phase III of the preparation period was based on overcoming and replacing negative pre-performance symptoms[6.19]. The content and structure of both the preparation booklet and one on one consultation was identical to that utilised in Phase II of the programme (view Section 6.43322).

6.43333 Goal Setting Skills

The goal setting programme for Phase III of the preparation period focused on performance goals and process goals. The content of the goals for each athlete mirrored those set in Phase II of the intervention (see Section 6.43323). However, these goals were written out for the athlete on laminated cue cards and a copy was placed in each players stick bag. The participants were asked to read or remind themselves of these goals at least three times during Phase III of the preparation period.

6.43334 Self-Talk Skills

The self-talk programme for Phase III of the preparation period focused on 'technical', 'task based' or 'action based' statements related to the participants position or role within the team[6.20]. Therefore, the preparation booklet for Phase III asked participants to record this information.

During the one on one consultation these technical, task based and action based statements were discussed and in line with the recommendations of Landin (1994) were

[6.19] The implementation of these skills resulted from the skills and strategies identified by the facilitators in study three for this preparation Phase. Please refer to Section 5.523 and Figure 5.6 in Chapter V.

[6.20] The implementation of these skills resulted from the skills and strategies identified by the facilitators in study three for this preparation Phase. Please refer to Section 5.423 and Figure 5.6 in Chapter V.

modified into statements that were phonetically simple. In addition to these statements, the performance and profiles goals set by the players were modified into phonetically simple positive self-talk statements. For example, one participant (a midfield player) set the performance goal to maintain possession with 70% of passes made. This performance goal was simplified to the simple self-talk statement of 'possession'. These collective statements were then placed on laminated cue cards and each participant placed a copy in their stick bag. They were instructed to read or repeat the self-statements at least three times during Phase III of the preparation period.

6.434 Social Validation Procedure

Following the culmination of the last competitive fixture within the 10 match series, each participant completed the social validation questionnaire. This process was undertaken away from the competitive arena, away from the presence of the sport psychologist, and at least 48 hours following competition in line with the recommendations of Pates et al. (2001) and Thelwell and Maynard (2003).

6.44 DATA ANALYSIS

6.441 Competitive Anxiety Data

Analysis of symptom responses was undertaken across the dimensions of intensity, direction and frequency for the symptoms of cognitive anxiety, somatic anxiety and self-confidence. Profiles were plotted across the 10 match programme (pre and post intervention), and visually inspected for examination of intervention effects (Robson, 1994). Based on the recommendations of Hrycaiko and Martin, (1996) this inspection utilised the following criteria to establish a significant experimental effect; (a) the number of overlapping data points between baseline and treatment phases, (b)

the immediacy of an effect being observed following intervention, (c) the size of the effect following intervention, (d) the consistency of an effect across participants.

6.442 Performance Data

Performance data were also analysed across the 10 match programme using the same visual inspection criteria detailed in Section 6.441. Specifically, the effect of the intervention was examined on positive performance scores, negative performance scores, correct option choice and incorrect option choice (view Figure 6.3). However, prior to visual inspection, the data for each performance indicator were treated. Hughes and Bartlett (2002) stated that individual performance data derived from notational analysis require standardisation prior to interpretation. Specifically, any error or success frequency requires normalisation by the total number of actions completed by the player to provide a standardised percentage measure of performance. Therefore, option data (correct/incorrect) were standardised by the total number of option skills performed by each individual within each match. Additionally, performance score data (positive/negative) were standardised by the total number of actions performed by each individual within each match.

6.5 RESULTS

6.51 PARTICIPANT 1

Participant 1 was a 29 year old midfield player who had been playing first class hockey (Premier/National League) for 12 years. She has also competed at territorial level (regional) and played internationally. Participant 1 received the intervention after four matches within the ten match competition cycle. The pre-intervention matches comprised two home and two away fixtures; where as the post-intervention matches contained four home fixtures and two away.

6.511 Symptom Data Across the Ten Match Programme

Symptom data for participant 1 are presented across each pre-competition preparation time phase in Figures 6.6 to 6.9 respectively. Each Figure displays the mean score for each of the subscales on the modified CSAI-2 and the range of values recorded during the pre and post intervention phases. Additionally, Table 6.3 compares the data recorded at each preparation phase for each symptom to the inspection criteria outlined in Section 6.441. Specifically, these included whether an effect was noted, the number (if any) of pre to post intervention overlapping data points, and the immediacy of any intervention effects (number [if any], of game delays following introduction of the intervention programme).

6.5111 Cognitive Intensity

The effects of the intervention programme during the preparation time for competition over cognitive intensity are detailed in Figure 6.6a to 6.9a and Table 6.3. Cognitive anxiety levels decreased following the intervention during every pre-competition preparation phase. This suggested the intervention programme was successful. However, possible caution is advised in the interpretation of this finding due to the number of overlapping data points observed at the 2 day and 1 hour preparation phase.

6.5112 Cognitive Direction

Figures 6.6b to 6.9b and Table 6.3 detail the impact of the intervention programme over participant 1's interpretation of cognitive anxiety symptoms. Throughout the whole of the preparation period the intervention was successful at restructuring interpretations from a continuous debilitative profile to a facilitative

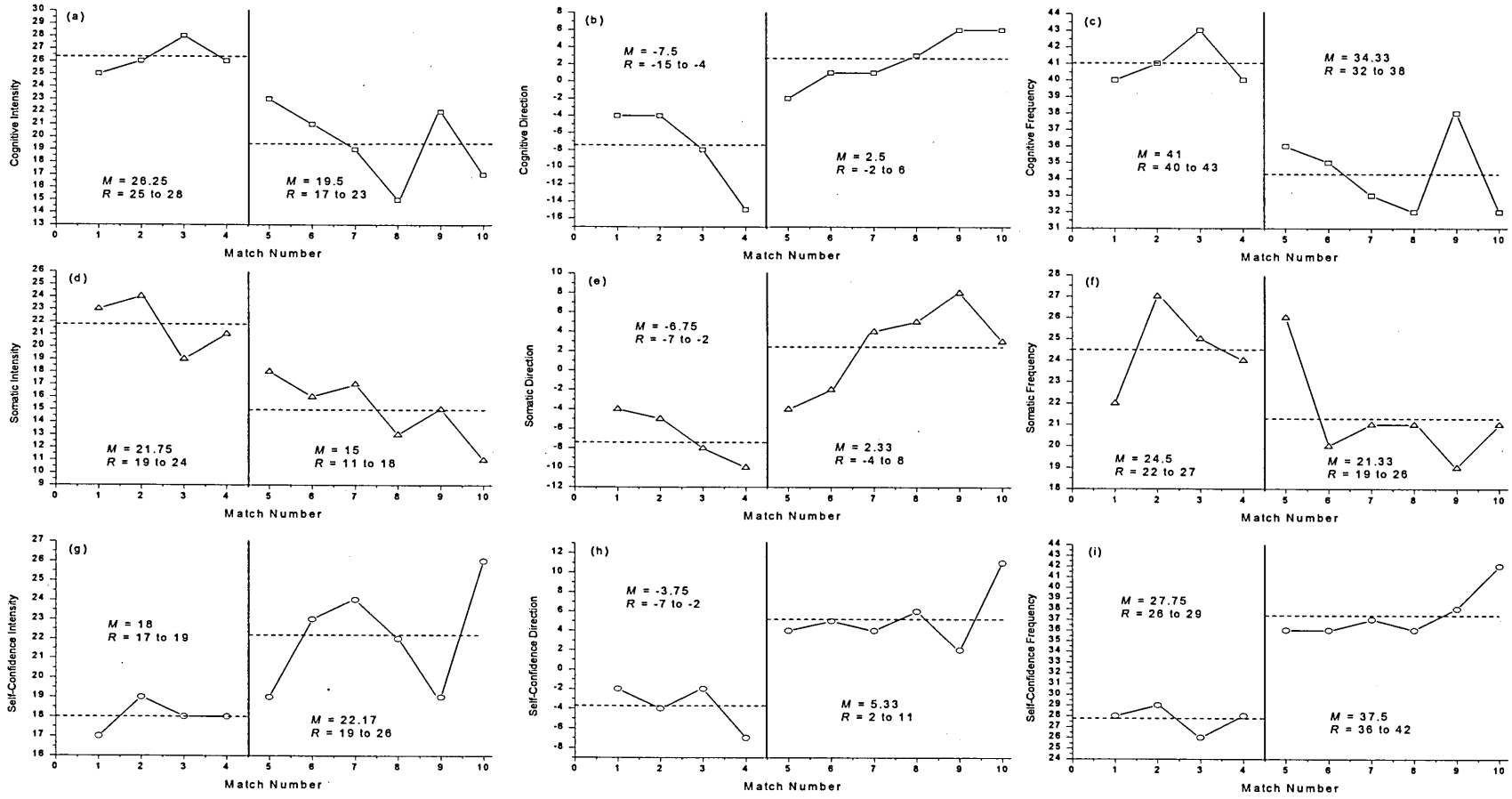

Figure 6.6: Symptom Responses Throughout the Six Day Pre-Competition Preparation Period: Participant 1

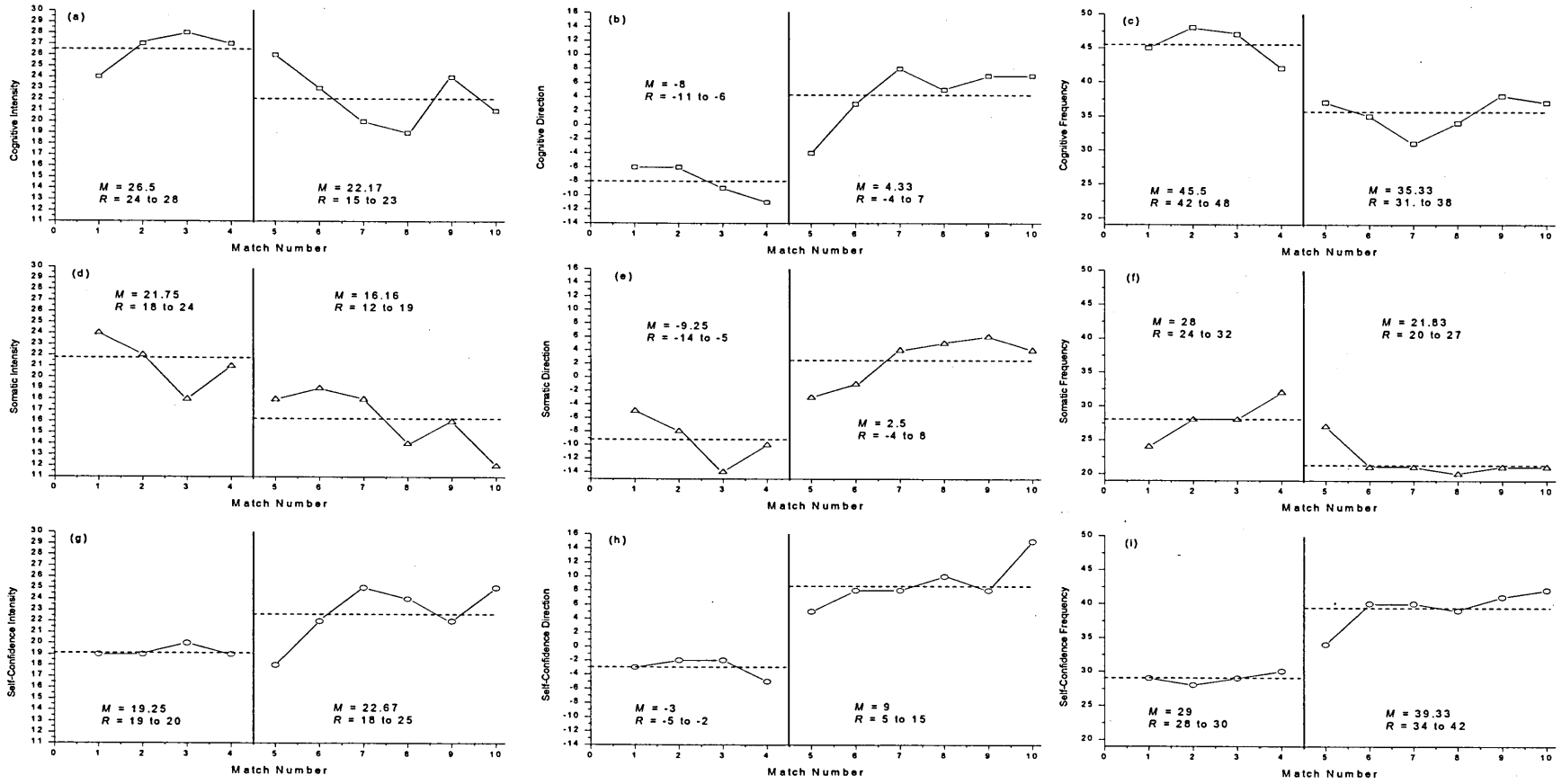

Figure 6.7: Symptom Responses Throughout the Two Day Pre-Competition Preparation Period: Participant 1

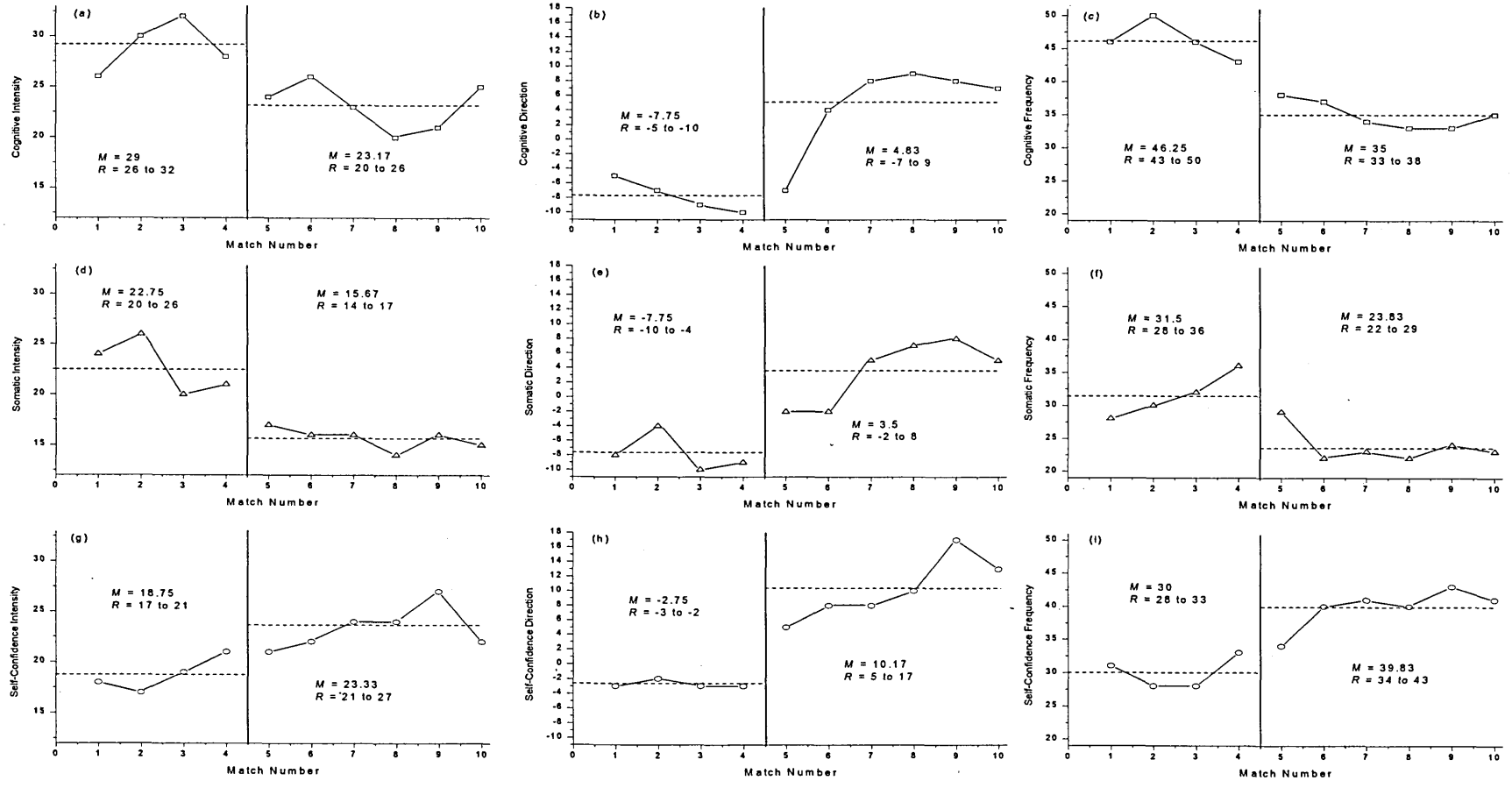

Figure 6.8: Symptom Responses Throughout the One Day Pre-Competition Preparation Period: Participant 1

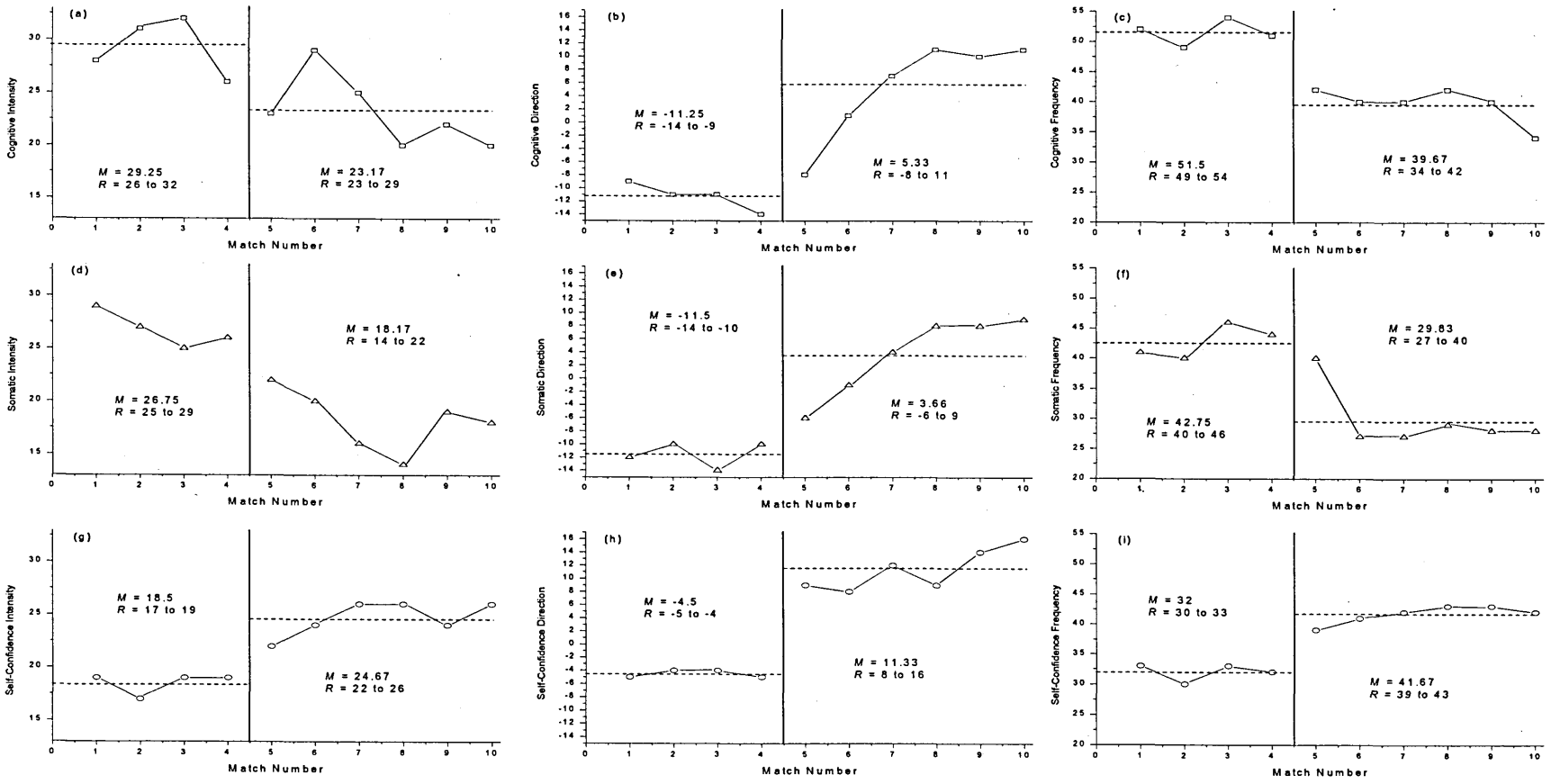

Figure 6.9: Symptom Responses Throughout the One Hour Pre-Competition Preparation Period: Participant 1

Table (6.3) Comparison of Symptom Data to Experimental Criteria for Participant 1

Symptom	Criteria	6 Days	2 Days	1 Day	1 Hour
	Effect	Yes	Yes	Yes	Yes
CA-I	N° of ODP	0	2	1	2
	Delay (N° of games)	0	1	1	0
	Effect	Yes	Yes	Yes	Yes
CA-D	N° of ODP	0	0	1	0
	Delay (N° of games)	0	0	1	0
	Effect	Yes	Yes	Yes	Yes
CA-F	N° of ODP	0	0	0	0
	Delay (N° of games)	0	0	0	0
	Effect	Yes	Yes	Yes	Yes
SA-I	N° of ODP	0	3	0	0
	Delay (N° of games)	0	3	0	0
	Effect	Yes	Yes	Yes	Yes
SA-D	N° of ODP	1	0	0	0
	Delay (N° of games)	1	0	0	0
	Effect	Yes	Yes	Yes	Yes
SA-F	N° of ODP	1	1	1	1
	Delay (N° of games)	1	1	1	1
	Effect	Yes	Yes	Yes	Yes
SC-I	N° of ODP	1	1	1	0
	Delay (N° of games)	1	1	1	0
	Effect	Yes	Yes	Yes	Yes
SC-D	N° of ODP	0	0	0	0
	Delay (N° of games)	0	0	0	0
	Effect	Yes	Yes	Yes	Yes
SC-F	N° of ODP	0	0	0	0
	Delay (N° of games)	0	0	1	0

Legend: CA = Cognitive anxiety; SA = Somatic anxiety; SC = Self-confidence; I = Intensity; D = Direction; F = Frequency; Effect = Intervention effect determined (Yes/No); N° of ODP = Number of pre to post intervention overlapping data points; Delay (N° of games) = Immediacy of effect (if present)

interpretation. Further, with the exception of the 1 day pre-competition preparation phase there was no overlapping data points or delay in the realisation of this effect.

6.5113 Cognitive Frequency

The effect of the intervention over the amount of time participant 1 spent thinking about cognitive anxiety symptoms during the preparation phase for competition are represented in Figure 6.6c to 6.9c and Table 6.3. Following intervention, there was a consistent decrease in the frequency with which participant 2 thought about cognitive anxiety symptoms. Further, throughout the whole preparation period there were no overlapping data points or delays in the immediacy of this effect. This indicated the intervention was successful at lowing the frequency of cognitive anxiety experienced by participant 1 during the preparation phase for competition.

6.5114 Somatic Intensity

Figures 6.6d to 6.6d and Table 6.3 highlight the effects of the intervention programme over somatic anxiety intensity. Throughout the whole of the preparation period the intervention programme was successful in lowering the levels of somatic anxiety experienced by participant 1. Further, with the exception of the 2 day pre-competition phase, these effects were immediate and no overlapping data points were observed.

6.5115 Somatic Direction

The effects of the intervention programme over the interpretation of somatic anxiety symptoms are detailed in Figures 6.6e to 6.6e and Table 6.3. Following intervention, interpretation was consistently modified from a debilitative to facilitative profile. Further, with the exception of the 6 day pre-competition phase these changes

were immediate and no overlapping data points were observed. This suggested the intervention was successful at restructuring participant 1's interpretation of somatic anxiety.

6.5116 Somatic Frequency

The effect of the intervention programme over the amount of time participant 2 spent experiencing somatic symptoms during the preparation period are outlined in Figures 6.6f to 6.9f and Table 6.3. There was a consistent one game delay in the realisation of this effect creating one pre to post intervention overlapping data point. However, it appeared that the intervention was successful in lowering the amount of time participant 1 experienced somatic anxiety symptoms during preparation time for competition.

6.5117 Self-Confidence Intensity

Figures 6.6g to 6.6g and Table 6.9 illustrate the effects of the intervention programme over the levels of self-confidence experienced by participant 1. The intervention provided a consistent increase in the levels of self-confidence experienced by participant 1 throughout the preparation period. With the exception of the 1 hour pre-competition phase, there was a one game delay and single overlapping data point related to this effect.

6.5118 Self-Confidence Direction.

Figures 6.6h to 6.6h and Table 6.3 detail the effects of the intervention programme over the interpretation of self-confidence. The intervention programme raised the facilitative effect of self-confidence direction throughout the whole preparation period. Further, there were no pre to post over lapping data points or delays

in the realisation of these effects. This indicated the intervention programme was successful in increasing the facilitative interpretation of self-confidence symptoms throughout the preparation period.

6.5119 Self-Confidence Frequency

The effects of the intervention programme over the amount of time participant 1 spent thinking about self-confidence symptoms throughout the preparation period are presented in Figures 6.6i to 6.6i and Table 6.3. The intervention programme successfully increased the frequency of self-confidence symptoms throughout the whole of the preparation period. Further, with the exception of the 1 day pre-competition period there were no overlapping data points or delays in the realisation of these effects.

6.512 Performance Data Across the Ten Match Programme

Percentage correct and incorrect option choice data for participant 1 are displayed in Figure 6.10a and 6.10b respectively. During the baseline phase correct option choice averaged 81% and ranged between 70% and 80%. Following intervention, correct option choice averaged 91.67 and ranged between 86% and 96%. In comparison, incorrect option choice averaged 18.75% and ranged between 12% and 29% prior to intervention. These values decreased to 8.33% and ranged between 4% and 14% during the post intervention phase. This suggested the intervention programme had a positive impact on correct and incorrect option choice by participant 1, improving option choice by approximately 10%. However, several overlapping data points were noted pre to post intervention. Specifically, data for game 5 and 7 overlapped with pre intervention option scores. This suggested possible caution in the interpretation of these findings.

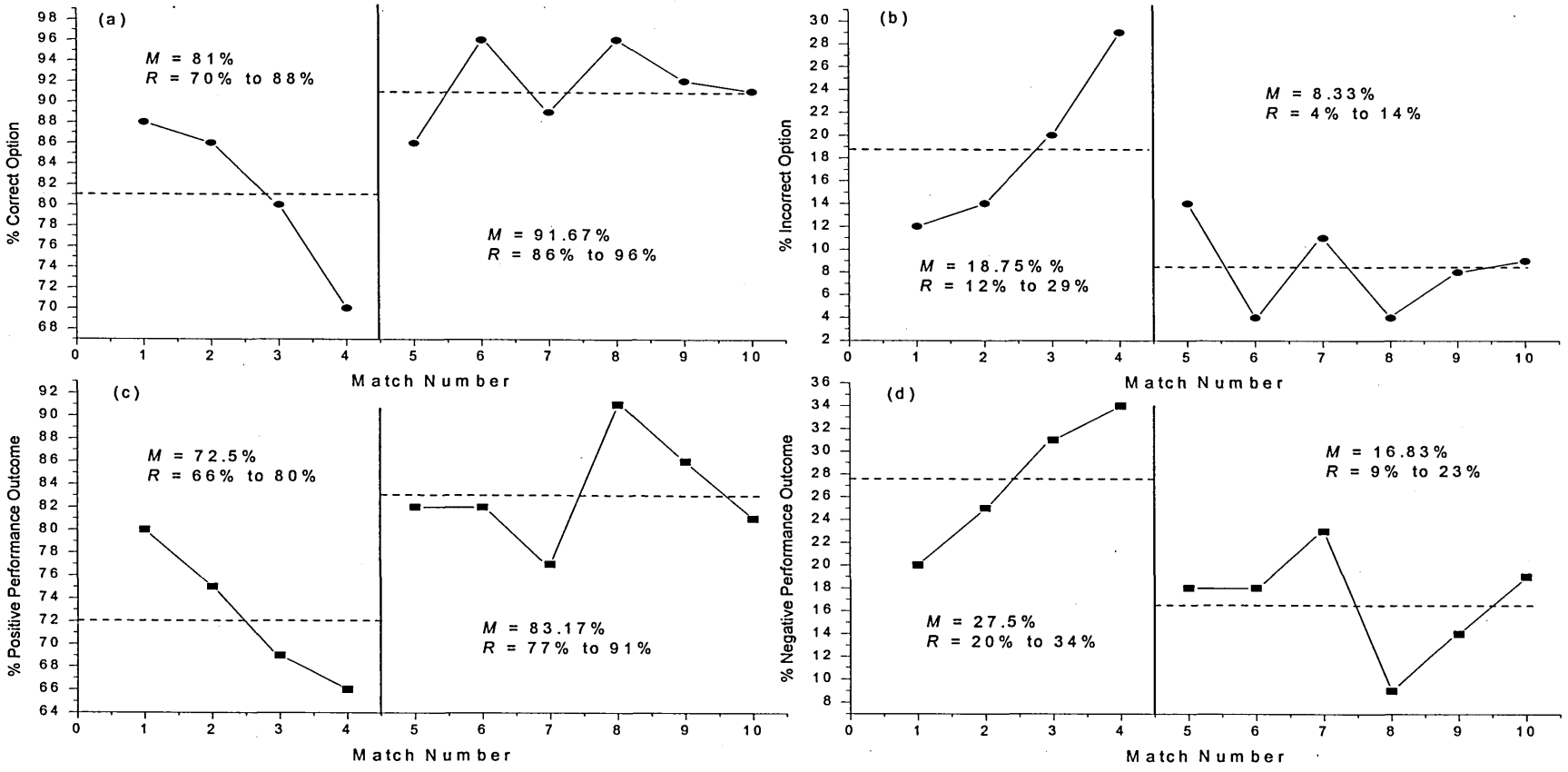

Figure 6.10: Performance Analysis Data: Participant One

Figures 6.10c and 6.10d present the positive and negative performance outcome scores for participant 1 throughout the 10 game programme. Prior to the intervention positive performance outcome scores averaged 72.5% and ranged between 66% and 80%. Following intervention these scores increased to an average value of 83.17% ranging between 77% and 91%. In comparison, negative performance outcome scores averaged 27.5% and ranged between 20% and 34% prior to the intervention programme. These values decreased following the intervention to an average score of 16.83% ranging between 9 and 23 following the intervention. These findings indicated the intervention provided an approximate 9% improvement in performance outcome scores of participant 1. However, one overlapping pre to post data point was observed for game 7 of the 10 game series (third game following the introduction of the intervention.

6.513 Summary for Participant 1

In summary of the effects of the intervention over the symptom responses of participant 1, the programme had a positive influence over all dimensions. Specifically, cognitive and somatic intensity decreased and self-confidence intensity increased across all pre-competition preparation phases following the intervention. Further, the directional interpretation of these symptoms became facilitative after the introduction of intervention within each of the preparation phases. Finally, frequency of cognitive anxiety and somatic anxiety symptoms was lower and frequency of self-confidence symptoms higher across each preparation phase following the intervention. Additionally, with the exception of a one game delay for somatic anxiety frequency and self-confidence intensity, there were no delays or overlapping data points in the realisation of these effects.

The intervention programme also noted beneficial effects over option choice performance and outcome performance for participant 1. Option choices detailed an

approximate 10% improvement in performance and performance outcomes noted an approximate 11% improvement in performance.

6.52 PARTICIPANT 2

Participant 2 was a 21-year-old midfield player who had been playing first class hockey (Premier/National League) for 4 years. She has also competed at territorial level (regional), and was currently playing at an international level. Participant 2 received the intervention after five matches within the 10-match competition cycle. The pre-intervention matches comprised three home and two away fixtures; where as the post-intervention matches contained four home fixtures and one away.

6.521 Symptom Data across the Ten Match Programme

Symptom data for participant 2 are presented across each pre-competition preparation time phase in Figures 6.11 to 6.14 respectively. Each Figure displays the mean score for each of the subscales on the modified CSAI-2 and the range of values recorded during the pre and post intervention phases. Additionally, Table 6.4 compares the data recorded at each preparation phase for each symptom to the inspection criteria outlined in Section 6.441. Specifically, these included whether an effect was noted, the number (if any) of pre to post intervention overlapping data points, and the immediacy of any intervention effects (number [if any], of game delays following introduction of the intervention programme).

6.5211 Cognitive Intensity

Figures 6.11a to 6.11a and Table 6.4 highlight the effects of the intervention over cognitive anxiety intensity throughout the preparation time for competition. Throughout the whole of the preparation period it appeared that the intervention had no effect over

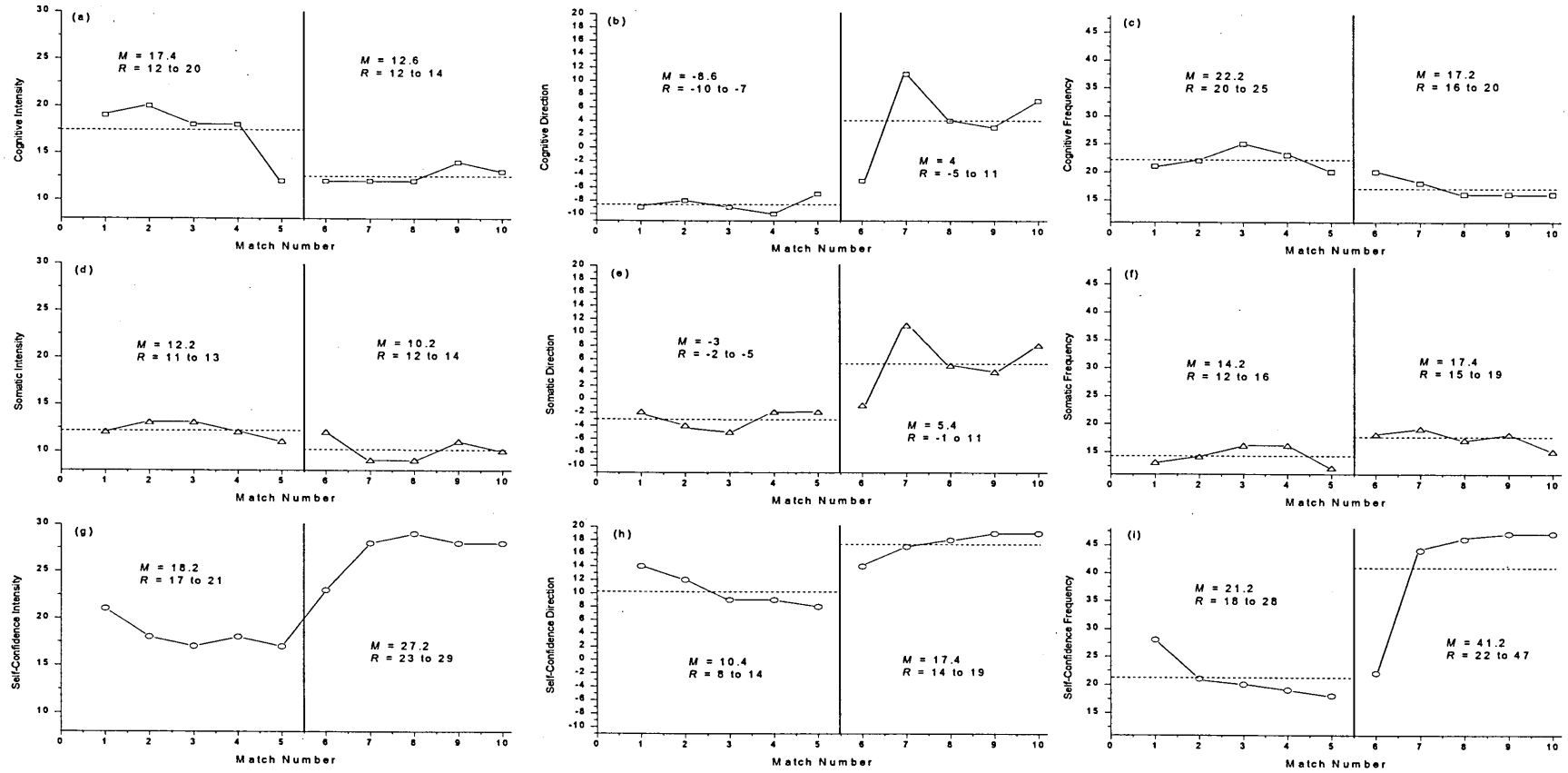

Figure 6.11: Symptom Responses Throughout the Six Day Pre-Competition Preparation Period: Participant 2

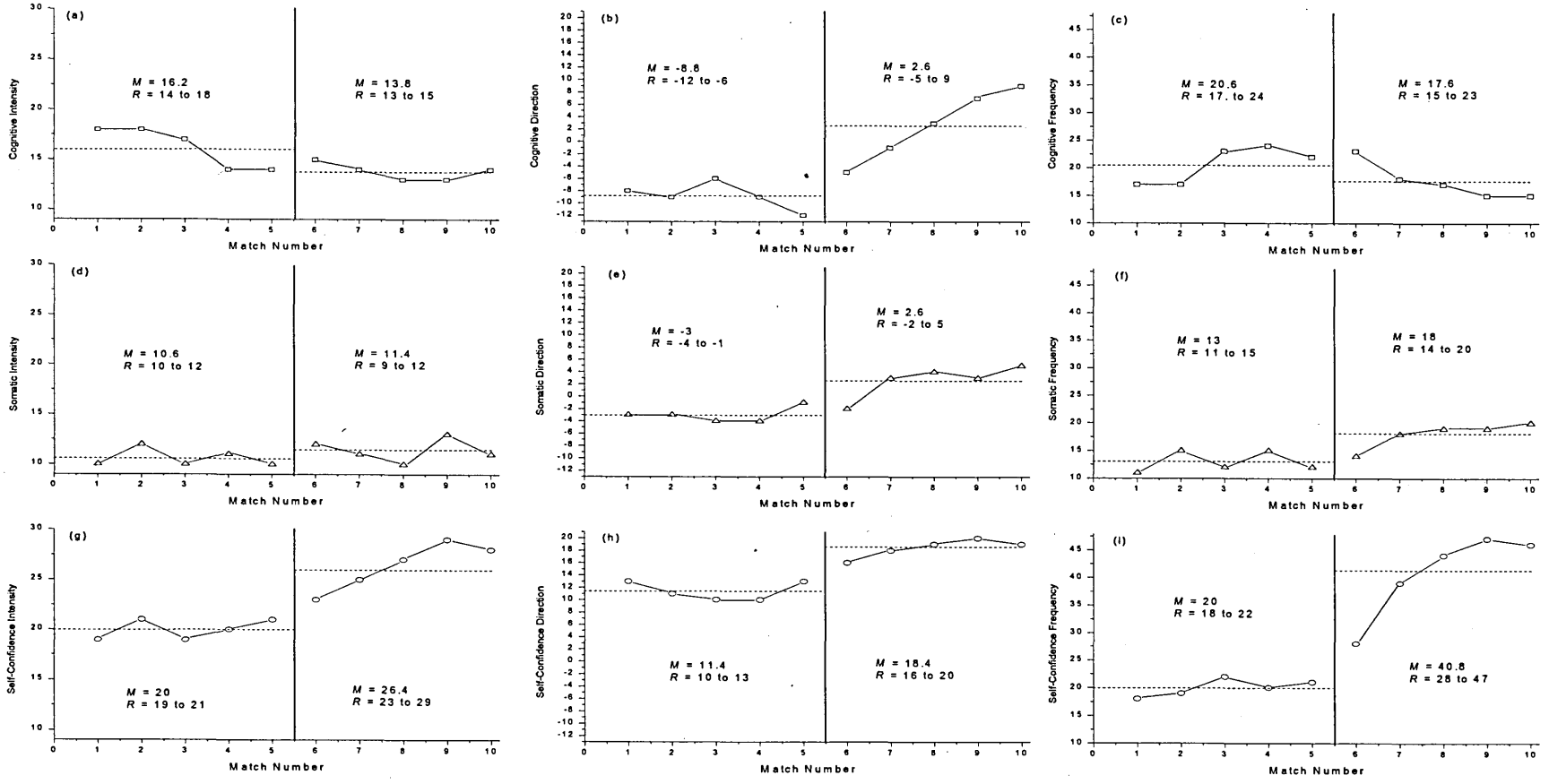

Figure 6.12: Symptom Responses Throughout the Two Day Pre-Competition Preparation Period: Participant 2

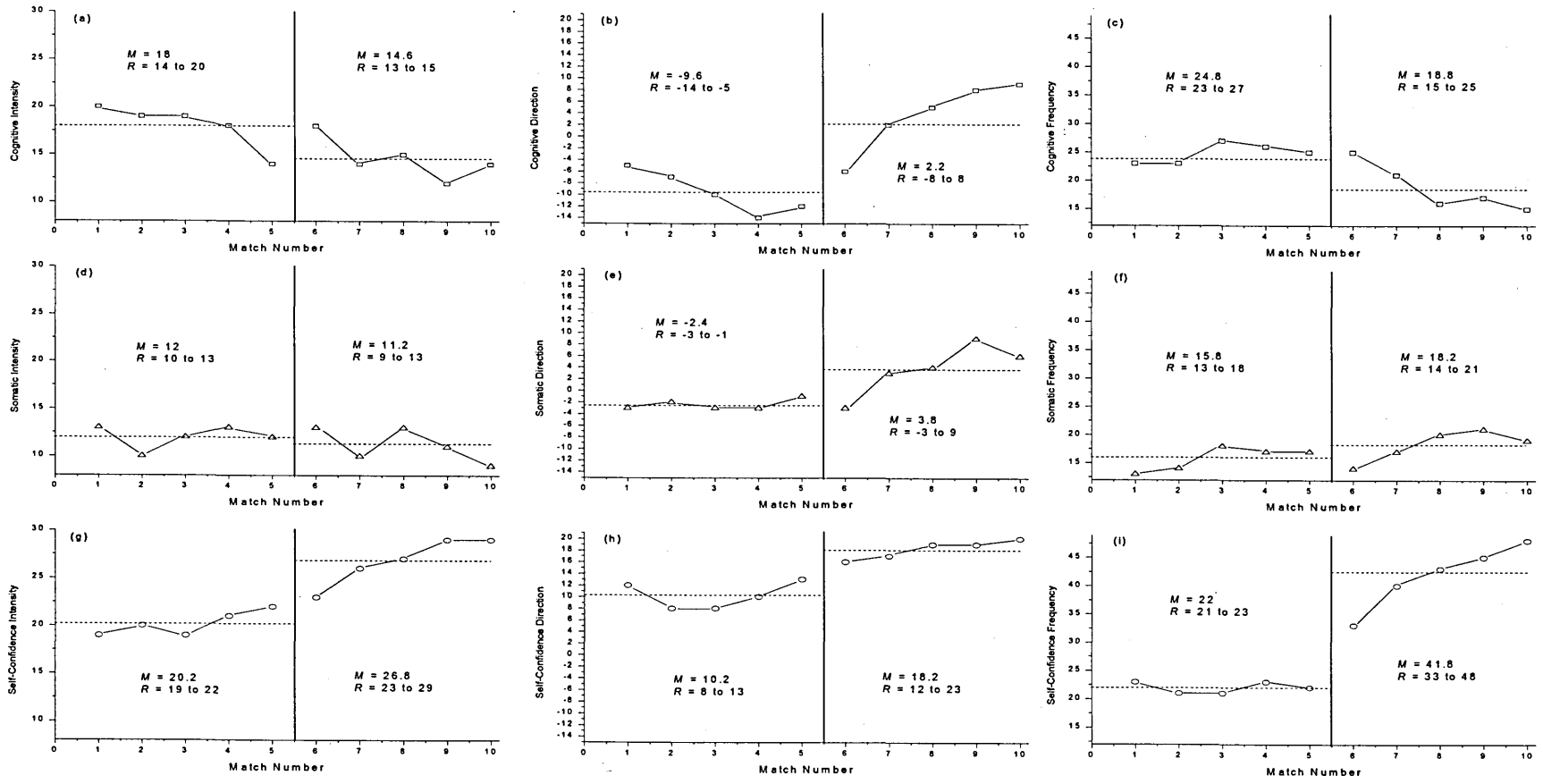

Figure 6.13: Symptom Responses Throughout the One Day Pre-Competition Preparation Period: Participant 2

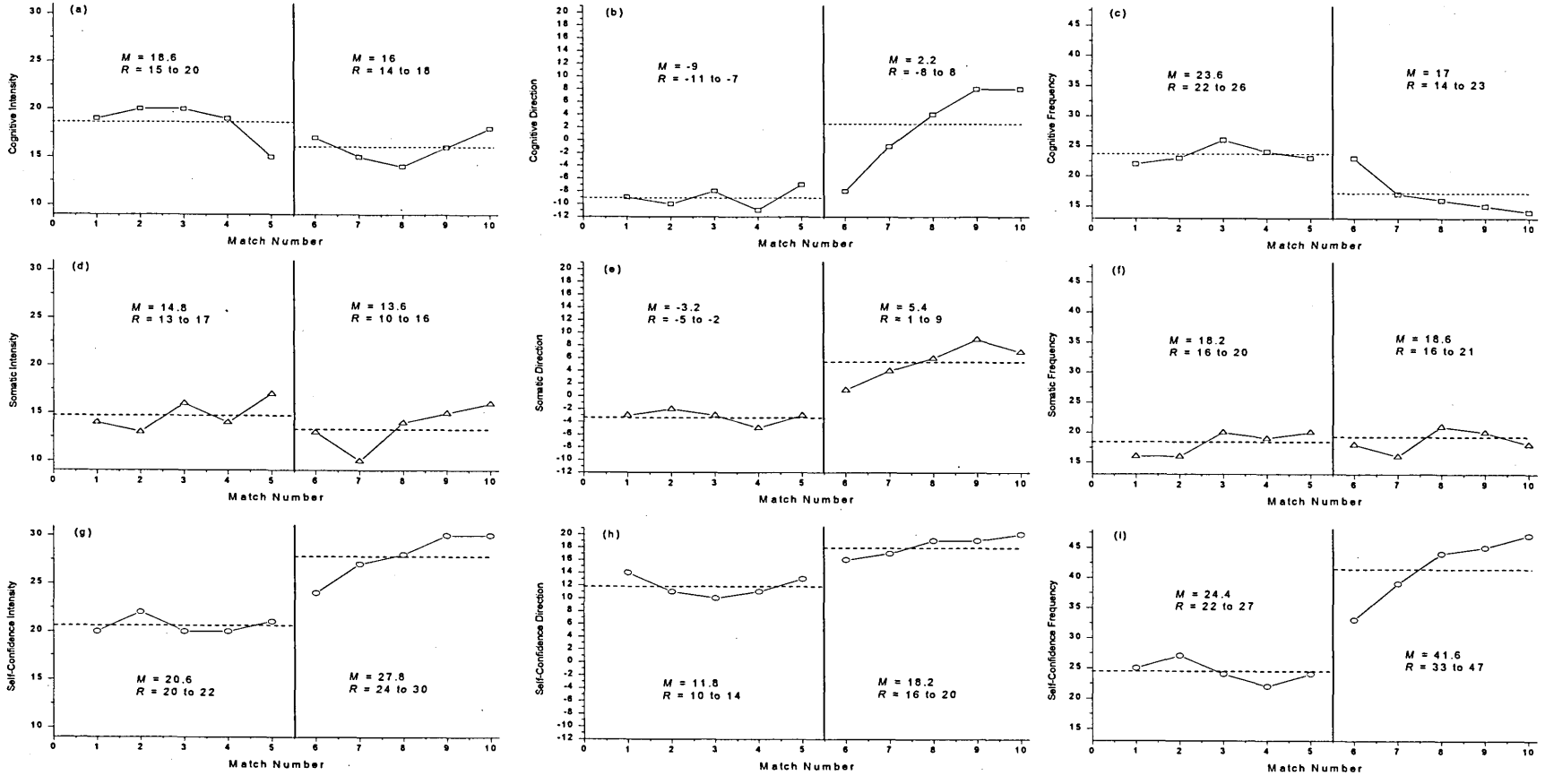

Figure 6.14: Symptom Responses Throughout the One Hour Pre-Competition Preparation Period: Participant 2

Table (6.4) Comparison of Symptom Data to Experimental Criteria for Participant 2

Symptom	Criteria	6 Days	2 Days	1 Day	1 Hour
	Effect	No	No	No	No
CA-I	N° of ODP	N/A	N/A	N/A	N/A
	Delay (N° of games)	N/A	N/A	N/A	N/A
	Effect	Yes	Yes	Yes	Yes
CA-D	N° of ODP	0	1	1	1
	Delay (N° of games)	1	1	1	1
	Effect	No	No	Yes	Yes
CA-F	N° of ODP	N/A	N/A	1	1
	Delay (N° of games)	N/A	N/A	1	1
	Effect	No	No	No	No
SA-I	N° of ODP	N/A	N/A	N/A	N/A
	Delay (N° of games)	N/A	N/A	N/A	N/A
	Effect	Yes	Yes	Yes	Yes
SA-D	N° of ODP	1	1	1	0
	Delay (N° of games)	1	1	1	0
	Effect	No	No	No	No
SA-F	N° of ODP	N/A	N/A	N/A	N/A
	Delay (N° of games)	N/A	N/A	N/A	N/A
	Effect	Yes	Yes	Yes	Yes
SC-I	N° of ODP	0	0	0	0
	Delay (N° of games)	0	0	0	0
	Effect	Yes	Yes	Yes	Yes
SC-D	N° of ODP	1	0	0	0
	Delay (N° of games)	1	0	0	0
	Effect	Yes	Yes	Yes	Yes
SC-F	N° of ODP	0	0	0	0
	Delay (N° of games)	0	0	0	0

Legend: CA = Cognitive anxiety; SA = Somatic anxiety; SC = Self-confidence; I = Intensity; D = Direction; F = Frequency; Effect = Intervention effect determined (Yes/No); N° of ODP = Number of pre to post intervention overlapping data points; Delay (N° of games) = Immediacy of effect (if present)

the levels of cognitive anxiety experienced by participant 2. There were numerous overlapping data points and the size of the pre to post average changes appeared minimal.

6.5212 Cognitive Direction

The effects of the intervention programme over the interpretation of cognitive anxiety symptoms throughout the preparation time for competition are displayed in Figures 6.11b to 6.11b and Table 6.4. Throughout the entire preparation period the intervention successfully restructured participant 2's interpretation of cognitive anxiety. However, the immediacy of this effect was consistently delayed by one game following the introduction of the intervention.

6.5213 Cognitive Frequency

Figures 6.11c to 6.14c and Table 6.4 present the effects of the intervention programme over cognitive anxiety frequency. Throughout the early stages of the preparation period (6 days and 2 days pre-competition) the intervention provided no influence over the amount of time participant 2 spent thinking about cognitive anxiety. However, during the latter stages of the preparation period (1 day and 1 hour pre-competition) the intervention programme decreased the amount of time participant 2 spent thinking about cognitive anxiety. This suggested the intervention only provided an effect at times closer to competition.

6.5214 Somatic Intensity

Figures 6.11d to 6.14d and Table 6.4 highlight the effects of the intervention over somatic anxiety intensity throughout the preparation time for competition. It appeared that the intervention had no effect over the levels of somatic anxiety

experienced by participant 2 during the preparation phases for competition. Numerous overlapping data points were observed, and the size of the pre to post average changes appeared minimal.

6.5215 Somatic Direction

The effects of the intervention programme throughout the preparation period over the interpretation of somatic anxiety are depicted in Figures 6.11e to 6.14e and Table 6.4. The intervention programme was successful at restructuring the interpretation of somatic anxiety throughout each pre-competition preparation phase. There were no delays or overlapping data points in the realisation of these effects at the 1 hour pre-competition phase, but a one game delay and pre to post overlapping data point within all other phases. However, collectively it appeared that the intervention was successful at restructuring participant 2's interpretation of somatic anxiety symptoms.

6.5216 Somatic Frequency

Figures 6.11f to 6.14f and Table 6.4 illustrate the effects of the intervention programme over the amount of time participant 2 spent experiencing somatic anxiety symptoms. Throughout the entire preparation period it appeared that the intervention had no effect over the amount time participant 2 spent experiencing somatic symptoms. Numerous overlapping data points were observed, and when an average effect was recorded, the magnitude of the effect was minimal.

6.5217 Self-Confidence Intensity

The effects of the intervention programme over levels of self-confidence across the preparation period are detailed in Figures 6.11g to 6.14g and Table 6.4. Throughout the entire pre-competition period the intervention successfully increased the levels of

self-confidence experienced by participant 2. Further, there were no overlapping data points or delays in the realisation of these positive effects.

6.5218 Self-Confidence Direction

Figures 6.11h to 6.14h and Table 6.4 display the effects of the intervention programme over the interpretation of self-confidence symptoms. The intervention provided a positive influence over the facilitative interpretation of self-confidence symptoms. Further, with the exception of the 6 day pre-competition phase there were no delays or pre to post intervention overlapping data points.

6.5219 Self-Confidence Frequency

The effects of the intervention programme over the amount of time participant 2 spent thinking about self-confidence symptoms throughout the preparation period are noted in Figures 6.11i to 6.14i and Table 6.4. Across all preparation phases the intervention programme increased the frequency with which participant 2 attended to self-confidence symptoms. Further, the immediacy of these effects was apparent and there were no pre to post intervention overlapping data points.

6.522 Performance Data across the Ten Match Programme

Performance data for correct and incorrect option choices for participant 2 are presented in Figure 6.15a and 6.15b respectively. Throughout the baseline phase correct option choice averaged 73.2% and ranged between 68% and 75%. Following the introduction of the intervention, this value increased to 81.8% and ranged between 65% and 93%. In comparison, incorrect option choice averaged 26.8% prior to intervention and decreased to 16.2% once the intervention had been introduced. This suggested that the intervention programme realised an overall positive impact on the option choice

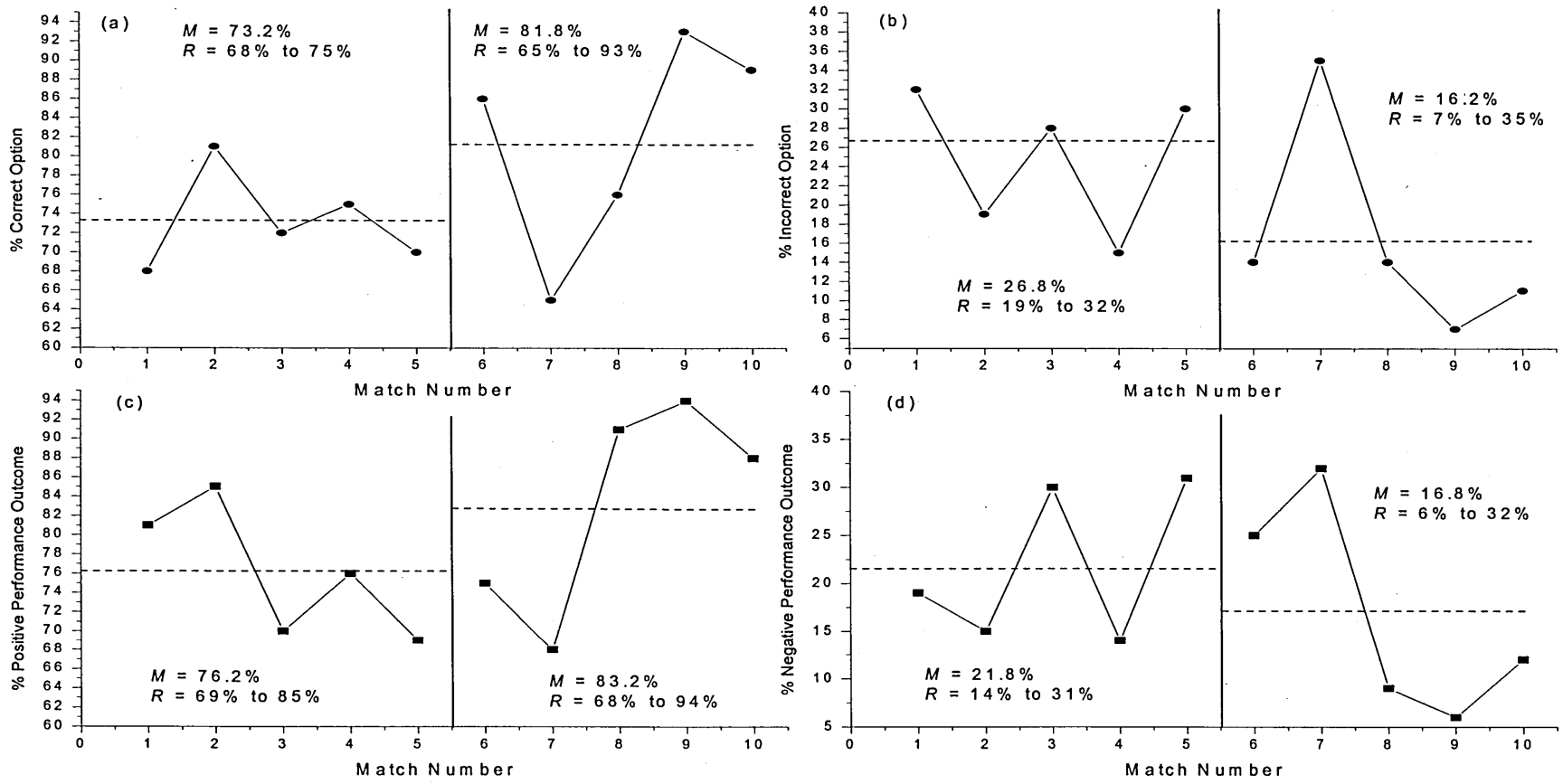

Figure 6.15: Performance Analysis Data: Participant Two

performance of participant 2. However, several overlapping data points were reported. Specifically, for correct option choice data for games 7 and 8 overlapped with pre-intervention scores; for incorrect option choice, data for game 7 overlapped with pre-intervention values. This suggested possible caution in the interpretation of the positive influence of the intervention programme over option choice performance by participant 2.

Outcome performance data for participant 2 are illustrated in Figures 6.15c and 6.15d. Prior to the introduction of the intervention positive performance outcome scores averaged 76.2% and ranged between 69% and 85%. Post intervention these values increased and positive performance outcome scores averaged 83.2% and ranged between 68% and 94%. In comparison, negative performance outcome scores averaged 21.8 during the baseline phase (range equalled 14 to 31), and decreased to 16.8% following introduction of the intervention. This suggested an overall performance outcome improvement between pre and post intervention phases. However, performance outcome scores (both positive and negative), for game 6 and 7 (the first two matches following intervention) overlapped with the pre-intervention data points. This suggested the immediacy of the performance enhancing effects took several games to be realised.

6.523 Summary for Participant 2

In summary of the effects of the intervention programme over the symptom responses of participant 2, it appeared that only certain dimensions were affected. Specifically, the intervention had no influence over cognitive and somatic anxiety intensity or somatic anxiety frequency throughout the whole of the preparation period. Additionally, the programme only fostered a positive influence over the frequency of cognitive anxiety symptoms during the latter stages of the preparation period (i.e., the 1 day and 1 hour pre-competition phase). In comparison, the programme exerted a

positive influence over the interpretation of symptoms creating a more facilitative interpretation of cognitive, somatic and self-confidence symptoms throughout every phase of the preparation period. However, there was a consistent delay in the immediacy of this change, with restructuring continuously taking until the second game following the introduction of the intervention to take effect. Finally, the intervention programme successfully increased both the intensity and frequency of self-confidence during each preparation phase; further, these increases immediately followed the introduction of the intervention.

Concerning effects over performance variables, the intervention provided a positive influence over both option choice and performance outcome. Specifically, correct option choice increased by approximately 8% and incorrect option choice displayed an improvement of approximately 10%. Additionally, performance outcome scores (both positive and negative) improved by approximately 5%. However, several overlapping data points were observed for both option choice and performance outcome scores between pre and post intervention phases. This suggested possible caution in the interpretation of these findings.

6.53 PARTICIPANT 3

Participant 2 was a 28-year-old forward player who had been playing first class hockey (Premier/National League) for 11 years who had previously competed at territorial level (regional). Participant 3 received the intervention after six matches within the 10-match competition cycle. The pre-intervention matches comprised three home and three away fixtures; where as, the post-intervention matches contained three home fixtures and one away.

6.531 Symptom Data across the Ten Match Programme

Symptom data for participant 3 are presented across each pre-competition preparation time phase in Figures 6.16 to 6.19 respectively. Each Figure displays the mean score for each of the subscales on the modified CSAI-2 and the range of values recorded during the pre and post intervention phases.

Additionally, Table 6.5 compares the data recorded at each preparation phase for each symptom to the inspection criteria outlined in Section 6.441. Specifically, these included whether an effect was noted, the number (if any) of pre to post intervention overlapping data points, and the immediacy of any intervention effects (number [if any], of game delays following introduction of the intervention programme).

6.5311 Cognitive Intensity

Figure 6.16a to 6.19a and Table 6.5 details the intervention effects over cognitive anxiety intensity for participant 2. Early in the preparation phase (6 days and 2 days pre-competition), the intervention provided no beneficial influence over the levels of cognitive anxiety experienced. However, at times closer to competition (1 day and 1 hour pre-match), the intervention was successful at lowing the levels of symptoms experienced by participant 3. One possible concern in the interpretation of this finding was the overlapping data points recorded for the 1 day pre-competition phase. Collectively, it appeared that the intervention programme successfully lowered the levels of cognitive anxiety experienced during the latter phases of competition preparation time.

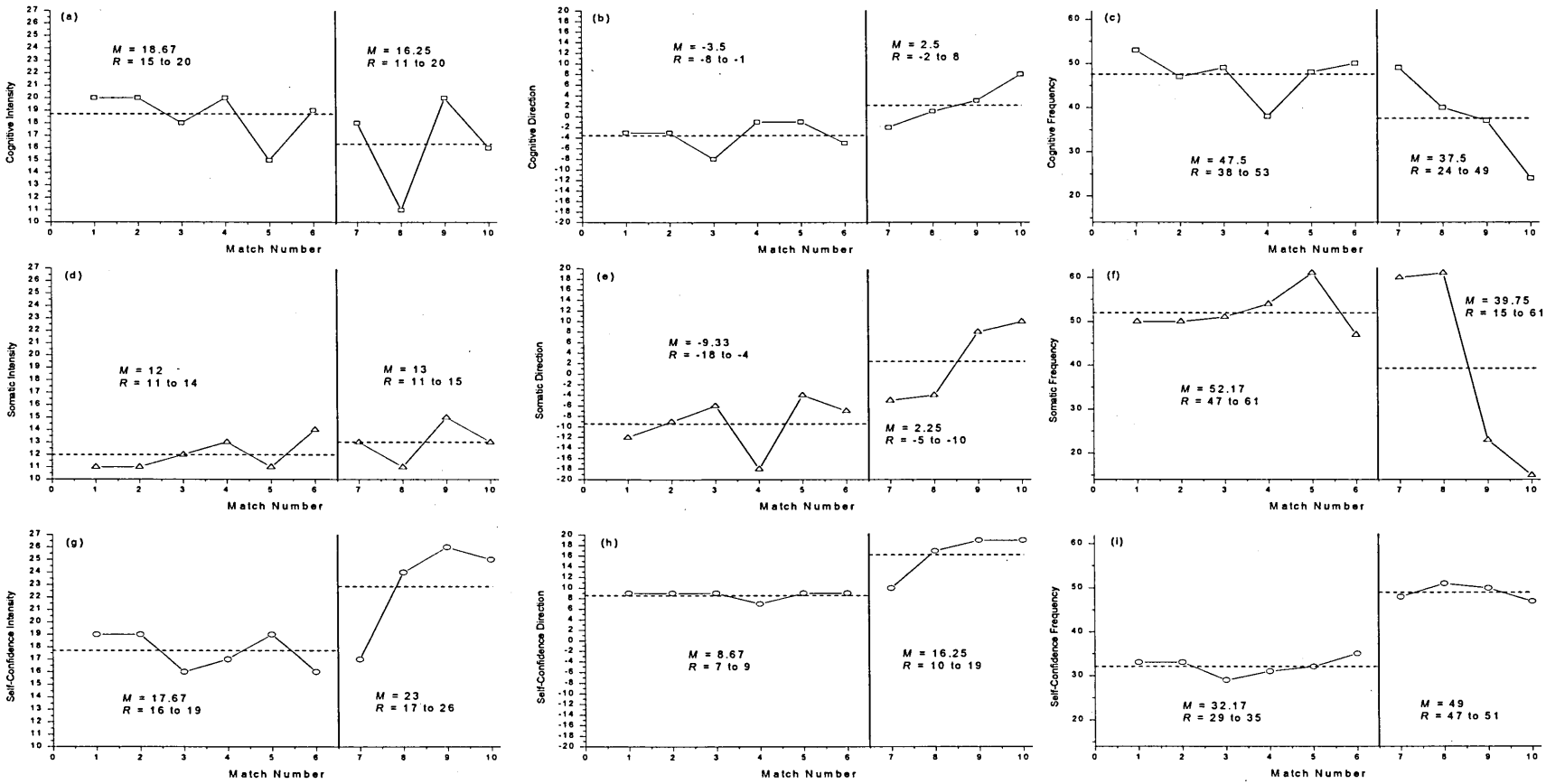

Figure 6.16: Symptom Responses Throughout the Six Day Pre-Competition Preparation Period: Participant 3

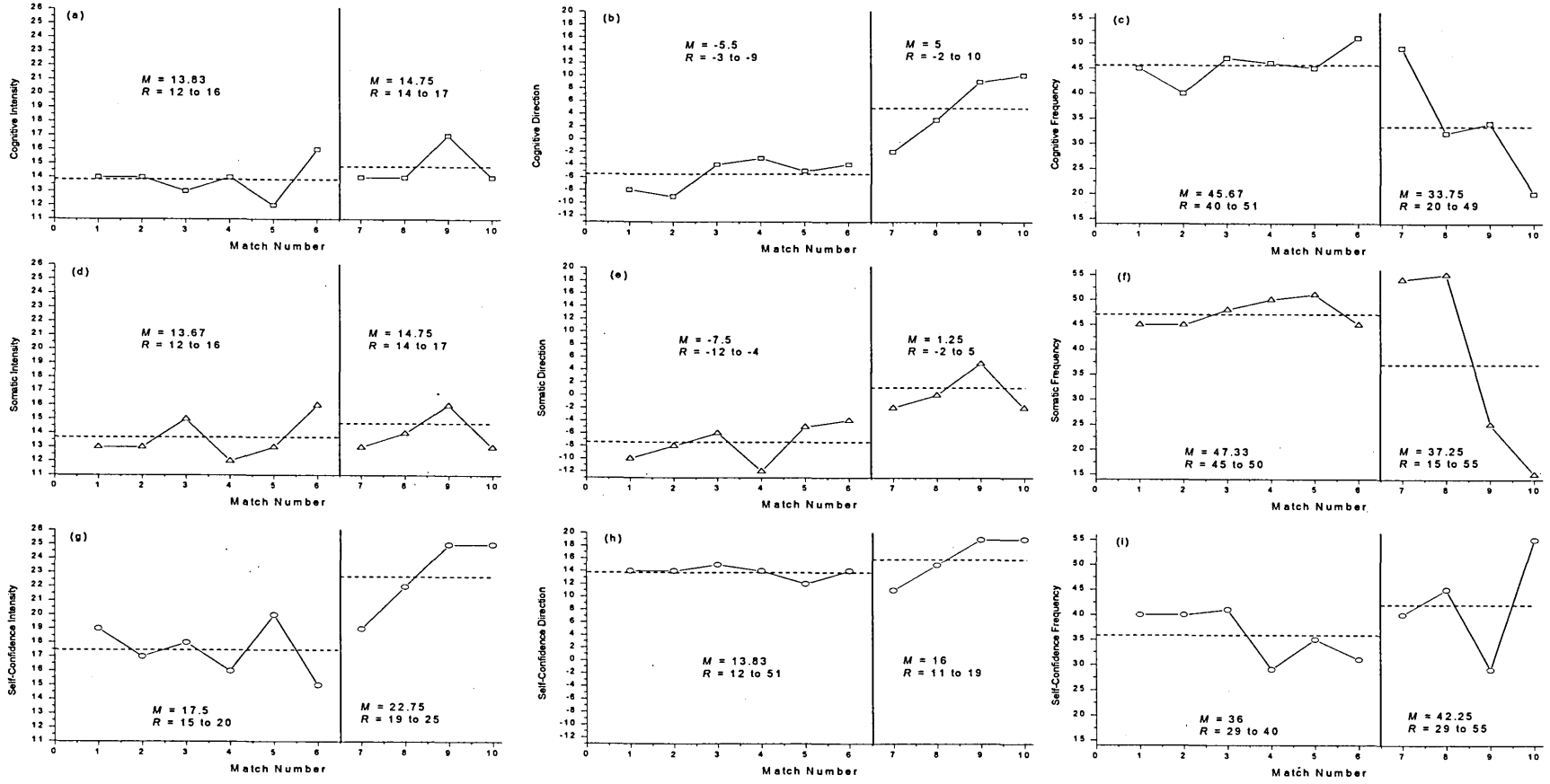

Figure 6.17: Symptom Responses Throughout the Two Day Pre-Competition Preparation Period: Participant 3

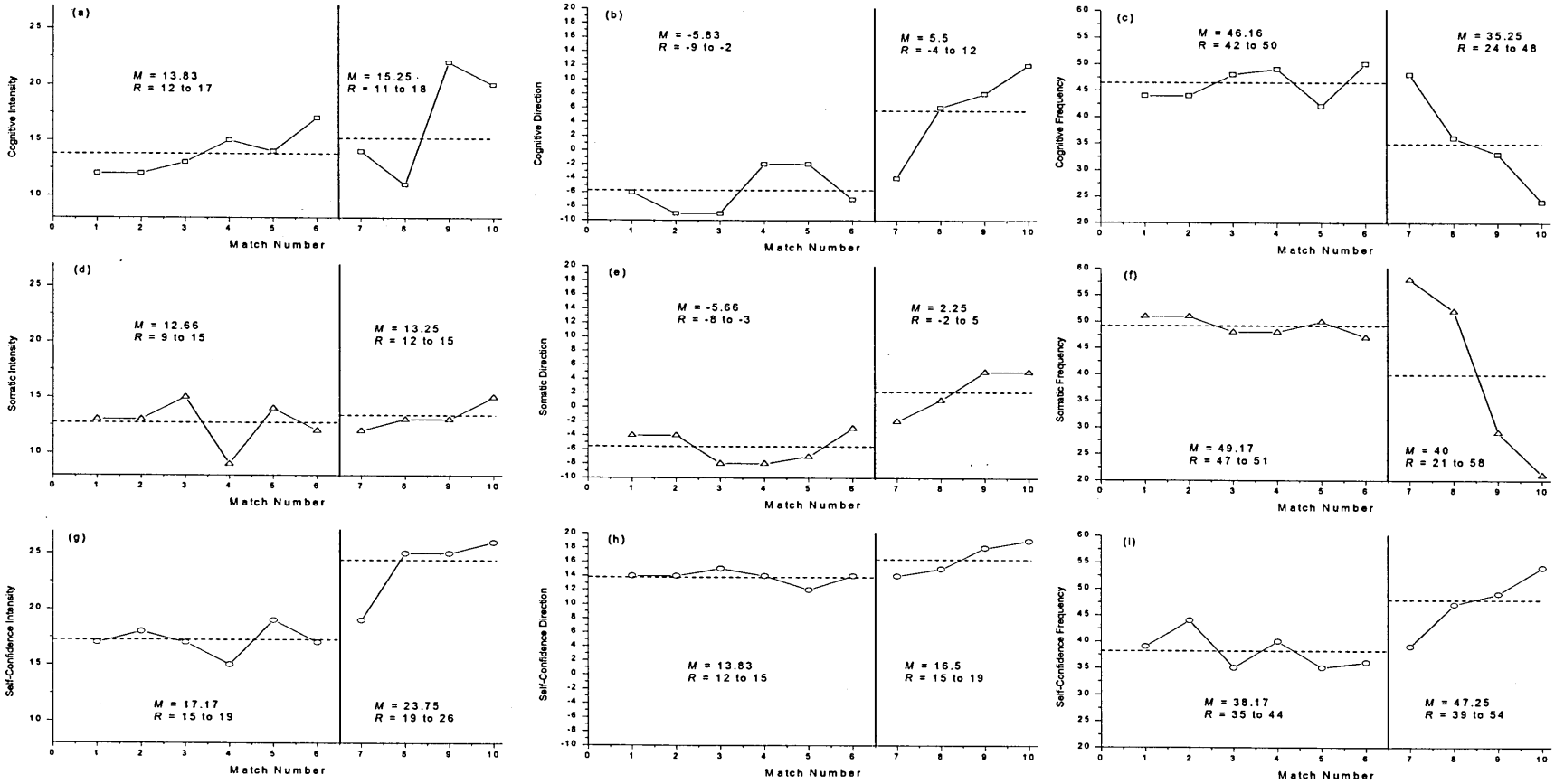

Figure 6.18: Symptom Responses Throughout the One Day Pre-Competition Preparation Period: Participant 3

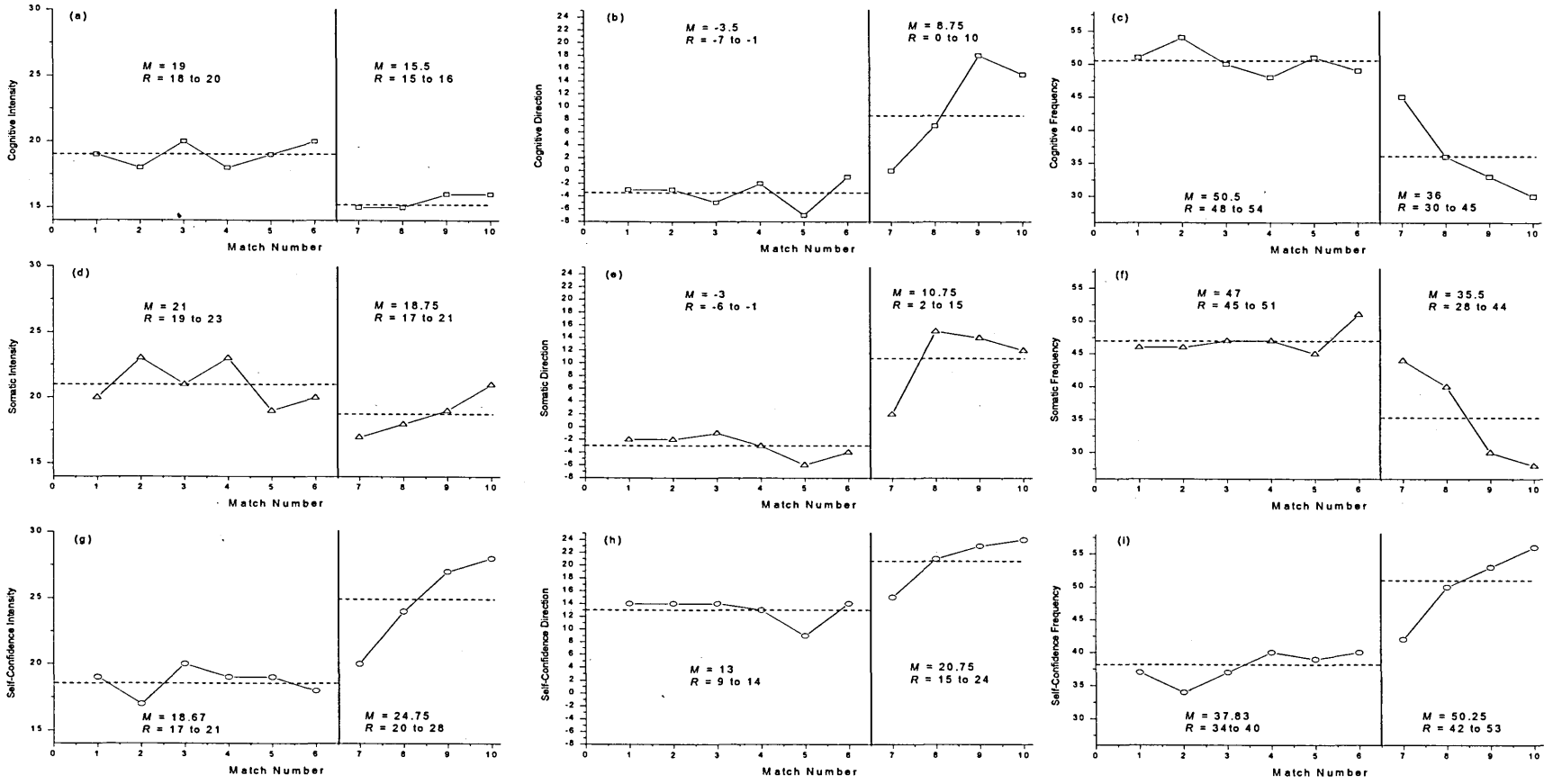

Figure 6.19: Symptom Responses Throughout the One Hour Pre-Competition Preparation Period: Participant 3

Table (6.5) Comparison of Symptom Data to Experimental Criteria for Participant 3

Symptom	Criteria	6 Days	2 Days	1 Day	1 Hour
	Effect	No	No	Yes	Yes
CA-I	N° of ODP	3	3	2	0
	Delay (N° of games)	N/A	N/A	2	0
	Effect	Yes	Yes	Yes	Yes
CA-D	N° of ODP	1	1	1	1
	Delay (N° of games)	1	0	1	1
	Effect	Yes	Yes	Yes	Yes
CA-F	N° of ODP	2	1	1	1
	Delay (N° of games)	2	1	1	1
	Effect	No	No	No	No
SA-I	N° of ODP	3	4	4	4
	Delay (N° of games)	N/A	N/A	N/A	N/A
	Effect	Yes	Yes	Yes	Yes
SA-D	N° of ODP	2	0	1	0
	Delay (N° of games)	2	1	1	0
	Effect	Yes	Yes	Yes	Yes
SA-F	N° of ODP	2	2	2	0
	Delay (N° of games)	2	2	2	1
	Effect	Yes	Yes	Yes	Yes
SC-I	N° of ODP	1	1	1	1
	Delay (N° of games)	1	1	1	1
	Effect	Yes	Yes	Yes	Yes
SC-D	N° of ODP	1	2	2	1
	Delay (N° of games)	1	2	2	1
	Effect	Yes	Yes	Yes	Yes
SC-F	N° of ODP	0	2	1	1
	Delay (N° of games)	0	1	1	1

Legend: CA = Cognitive anxiety; SA = Somatic anxiety; SC = Self-confidence; I = Intensity; D = Direction; F = Frequency; Effect = Intervention effect determined (Yes/No); N° of ODP = Number of pre to post intervention overlapping data points; Delay (N° of games) = Immediacy of effect (if present)

6.5312 Cognitive Direction

The effects of the intervention programme throughout preparation time for competition over the interpretation of cognitive anxiety symptoms are presented in Figures 6.16b to 6.19b and Table 6.5. Throughout the whole of the preparation period the intervention successfully restructured participant 3's interpretation of cognitive anxiety from debilitative to facilitative. However, the immediacy of this effect was consistently delayed to the second match following the introduction of the intervention.

6.5313 Cognitive Frequency

Figures 6.16c to 6.19c and Table 6.5 illustrate the impact of the intervention programme over the frequency with which participant 3 experienced cognitive anxiety symptoms. Throughout all preparation phases the intervention successfully decreased the amount of time participant 3 spent thinking about cognitive anxiety symptoms. These effects were party to one game delay for the latter three preparation phases and a two game delay for the 6 day phase. However, collectively it appeared that the intervention was successful in decreasing cognitive anxiety frequency.

6.5314 Somatic Intensity

Figures 6.16d to 6.19d and Table 6.5 highlights the effect of the intervention programme over somatic anxiety intensity. No intervention effect was noted over somatic intensity throughout the preparation period. Further, several overlapping data points were recorded across the pre to post intervention phases throughout the preparation period. Throughout the whole of the preparation phase, the intervention was successful at restructuring participant 3's interpretation of somatic anxiety symptoms.

6.5315 Somatic Direction

The effects of the intervention programme throughout preparation time for competition over the interpretation of somatic anxiety symptoms are presented in Figures 6.16e to 6.19e and Table 6.5. Throughout the entire preparation period the intervention was successful at restructuring participant 3's interpretation of somatic anxiety. At the 6 day phase there was a two game delay in the realisation of this effect, which decreased to a one game delay during the 2 day and 1 day phase, and disappeared to an instant effect during the 1 hour pre-competition phase. Collectively this indicated the intervention programme was successful at restructuring participant 3's interpretation of somatic anxiety symptoms throughout the preparation time for competition.

6.5316 Somatic Frequency

Figures 6.16f to 6.19f and Table 6.5 highlights the effect of the intervention programme over somatic anxiety frequency. Following introduction of the intervention the frequency of somatic symptoms was decreased throughout each preparation phase. However, delays existed in the immediacy of the intervention effect and several pre to post intervention overlapping data points were recorded during the firs three preparation phases. In comparison, no overlapping data pints were recorded for the final pre-competition preparation phase. Collectively, this indicated the intervention was successful at lowering the amount of time participant 3 spent experiencing somatic anxiety symptoms.

6.5317 Self-Confidence Intensity

The effects of the intervention programme over self-confidence intensity are presented in Figure 6.16g to 6.19g and Table 6.5. A consistent effect was noted over the levels of self-confidence experienced by participant 2 throughout the preparation period.

Although a one game delay and single pre to post intervention overlapping data point was recorded levels of self-confidence always increased following intervention. This suggested a positive effect of the intervention for participant 3.

6.5318 Self-Confidence Direction

Figures 6.16h to 6.19h and Table 6.5 displays the effects of the intervention programme over the interpretation of self-confidence symptoms. The intervention programme raised the facilitative effect of self-confidence direction throughout the entire preparation period. However, delays and overlapping data points were evident especially in the middle phases of the preparation period. This suggested possible caution when inferring the positive influence of the intervention programme over the facilitative influence of self-confidence symptoms.

6.5319 Self-Confidence Frequency

The effects of the intervention programme throughout preparation time for competition over the frequency of self-confidence symptoms are presented in Figures 6.16i to 6.19i and Table 6.5. Throughout the whole of the preparation period the intervention increased the amount of tie participant 3 spent thinking about self-confidence symptoms. Although during the last three preparation phases there was a one game delay in the realisation of this effect these findings suggested the intervention was capable of increasing the frequency with which participant 3 experienced self-confidence symptoms.

6.532 Performance Data across the Ten Match Programme

Performance data for participant 3's correct and incorrect option choices prior to and after intervention are presented in Figure 6.20a and 6.20b respectively. Throughout

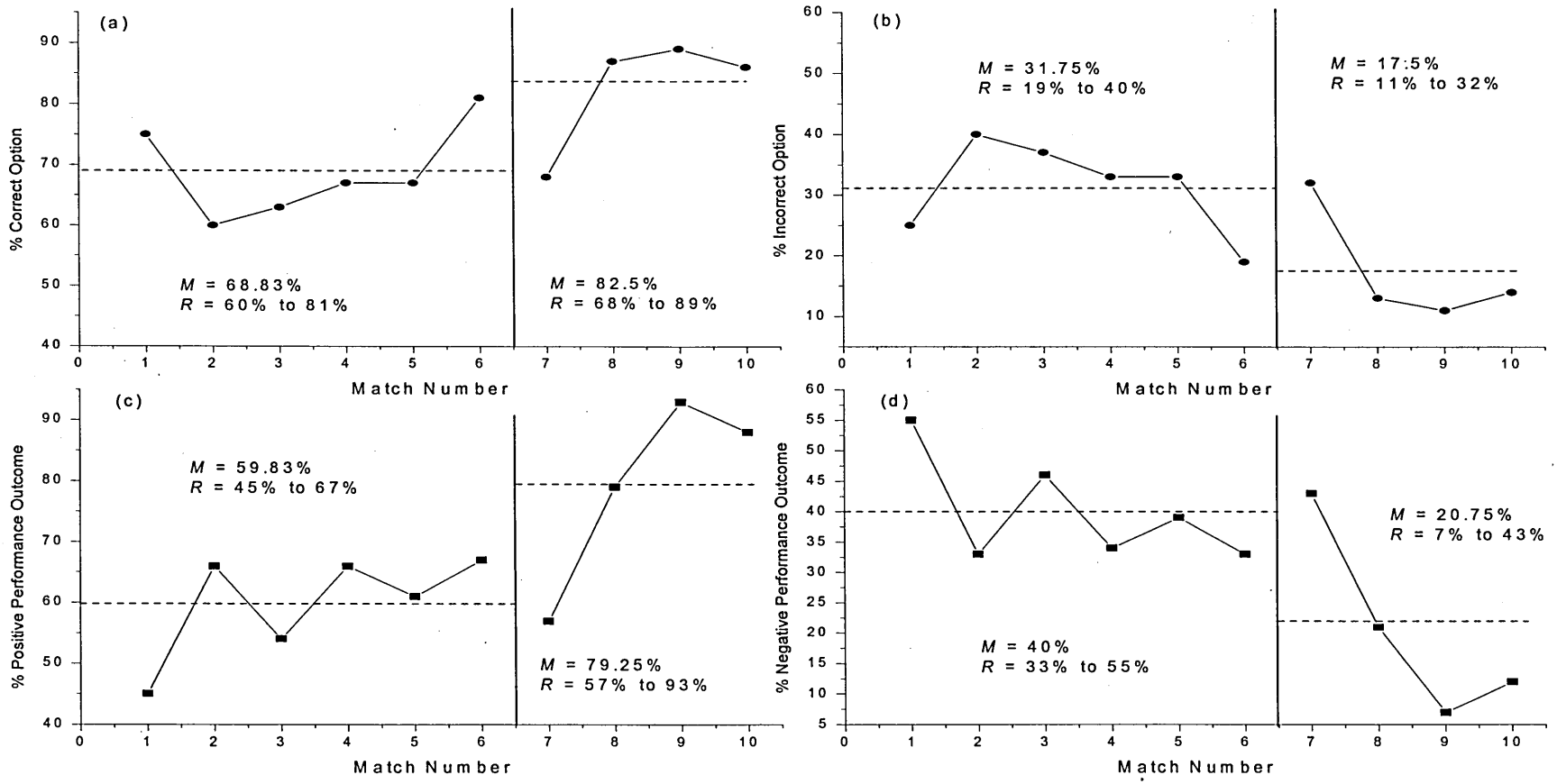

Figure 6.20: Performance Analysis Data: Participant Three

the baseline phase correct option choice averaged 68.83%, this score increased following intervention to 82.5%. Although the first post intervention data point overlapped with pre intervention data, this suggested the intervention was successful at modifying the option choice performance of participant 3.

Outcome performance data for participant 3 are displayed in Figures 6.20c and 6.20e. Prior to the intervention positive performance outcome scores averaged 59.83% and negative performance outcome scores averaged 40%. Following intervention these values were positively affected and positive outcome scores increased to an average of 79.25% and negative outcome scores decreased to an average of 20.75%. These findings indicated the intervention provided a positive influence over performance outcome scores for participant 3.

6.533 Summary for Participant 3

Summary of the effects of the intervention programme over the symptoms responses of participant 3 suggests the programme had a positive effect over the direction and frequency of all responses. Specifically, the interpretation of cognitive and somatic anxiety was restructured, and the facilitative interpretation of self-confidence was increased during each preparation phase. Further, the frequency of cognitive and somatic anxiety was decreased, and the frequency of self-confidence was increased following intervention. However, although the intervention successfully increased the intensity of self-confidence symptoms, it provided limited influence over the levels of cognitive and somatic anxiety. No pre to post intervention effects were noted over somatic intensity, and effects over cognitive anxiety were only realised for the final two pre-competition preparation phases.

Summary of the intervention effects over performance data suggested the intervention was successful at improving both option choice performance and outcome

performance. Specifically, correct option choice performance increased and incorrect option choice decreased by approximately 14%. Additionally, performance outcome scores (both positive and negative), were improved by approximately 20%.

6.54 SOCIAL VALIDATION DATA

Table 6.6 represents the social validation data recorded by each of the three participants. The responses indicated the importance of psychological preparation during the time leading up to competition was important to all participants. Two participants scored a 7 and one a 6, to a response format where 7 equalled '*extremely important*'. Responses concerning the participants perception of performance change indicated scores of 5, 6, and 7 across the three players with a score if 7 denoting an '*extremely significant*' improvement in performance. All participants appeared satisfied with the intervention programme with scores ranging between 6 and 7, where 7 represented '*extremely satisfied*'. Finally, when asked 'has the intervention proved useful for you?' responses ranged between 6 and 7 indicating participants were satisfied with the relevance of the intervention programme (a score of 7 denoting '*extremely satisfied*).

6.6 DISCUSSION

The major aims of study four were to examine the impact of a multi-modal psychological skills intervention programme over the symptom responses of three elite female field hockey players assessed as debilitators during the preparation time for competition. A further aim of the study was to examine the effects of the intervention programme in relation competitive sporting performance utilising the sensitive performance measure of notational analysis. The content and timing of the intervention programme were primarily based on the information provided by the facilitators during study three. The main hypotheses for the study were tentative and stated that the

Table (6.6): Social Validation Data

Participant	QA	QB	QC	QD
1	7	7	6	6
2	6	5	6	6
3	7	6	7	7

Legend: QA = 'How important is psychological preparation to you in the time leading up to competition; QB = 'Do you consider the changes in performance to be significant; QC = How satisfied were you with the intervention; QD = Has the intervention proved useful for you.

intervention would prove successful at restructuring the interpretation of both cognitive and somatic symptoms, increase the intensity and frequency of self-confidence symptoms, and decrease the frequency of cognitive anxiety symptoms.

Turning to the central findings of the study it appeared that the intervention was successful at realising all of these hypothesised effects. The interpretation of both cognitive and somatic anxiety was restructured from a debilitative to facilitative perception following intervention. Further, this effect was consistent throughout the whole of the preparation period. Additionally, following intervention, the intensity of self-confidence symptoms increased across all three participants. For the variables of cognitive and somatic direction, and self-confidence intensity, these findings support those reported by Hanton and Jones (1999b) and Maynard et al. (1995a, b). Further, the findings extend the positive effects of multimodal interventions into times during preparation for competition. Additionally, the work of Hanton and Jones (1999b) and Maynard et al. (1995a, b) did not allude to the dimension of frequency. The introduction of the intervention programme in this study was successful at decreasing the frequency of cognitive anxiety symptoms, and increasing the frequency of self-confidence symptoms throughout the preparation period for competition[6.21]. This suggests appropriate psychological skills interventions can positively influence the amount of time players spend thinking about or experiencing, negative or positive pre-performance symptoms.

Although these effects were consistent across participants, the immediacy of them was hindered in many cases by a one game delay. In relation to the inspection criteria used in the study, this suggested caution in the interpretation of the findings. Comparisons to the work of Maynard et al. (1995a, b) are not possible due to their use of a group design, however, similar delays were noted in the single-subject multiple

[6.21] The reader is reminded of the lack of effect for cognitive anxiety frequency for participant 2 during the 6 day and 2 day pre-competition preparation phases.

baseline work of Hanton and Jones (1999b). Importantly, Callow et al. (2001) indicated that delays in the realisation of intervention effects can be expected in single-subject designs when psychological skills intervention programmes are complex. The preparation based nature of the intervention programme used in this study, and the multiple phases and skills used in the time leading up to competition reflect a comprehensive detailed intervention programme. Indeed, the temporal nature of the programme provided a more detailed preparation based intervention than utilised by Hanton and Jones (1999b). Therefore, it is suggested the in-depth intervention used here provided scope to offset the delay effects realised in relation to the experimental criteria. Further, review of material in the learning domain indicates that when acquiring skills, be it physical, technical or mental, learning curves often indicate a delay effect during the early (i.e., cognitive) stages of learning (Magill, 2001; Schmidt & Lee, 1999).

In addition to providing a positive influence over the hypothesised symptoms, the intervention was also successful at manipulating several other anxiety and confidence variables. Specifically, the interpretation of self-confidence symptoms became more facilitative following the introduction of the intervention across all three participants. For participant 1, this change included a shift from a debilitative to a facilitative interpretation post intervention; in comparison, participant's 2 and 3 highlighted an increased facilitative score following the programme. Although speculative, the author suggests this increase in facilitation could have resulted from an increase in the level (i.e., intensity) and amount of time (i.e., frequency) the participants spent experiencing self-confidence symptoms. In short, if the participants were experiencing thinking about self-confidence symptoms more often, at higher levels positive interpretation of these symptoms is likely to be enhanced.

Finally, the intervention also provided a positive effect (i.e., led to a decrease) over the levels of cognitive anxiety intensity, and somatic anxiety frequency

experienced post intervention throughout the preparation period. However, caution is advised in the interpretation of these findings; specifically, they were only displayed by participants 1 and 3. The inspection criteria utilised in this study indicated effects should be consistent across all participants. Participant 1 indicated no intervention effects for either cognitive or somatic anxiety frequency for any phase during the preparation period.

A further aim of the study was to assess the impact of the intervention programme over individual field hockey performance. Across the participants, the intervention provided a positive influence over average performance criteria. Specifically, option choice performance improved by 10% for participant 1, 9% for participant 2, and 14% for participant 3. Further, performance outcome scores increased by 10%, 5% and 20% respectively across participants 1, 2 and 3. These gains are considerable when one considers the participant sample comprised elite field hockey players two of whom were performers of an international standard. Interestingly, participant's 1 and 2 improvement in both option choice and performance outcome scores was limited to a maximum of 10%. This compared to participant 3's increase which reached a maximum of 20%. Possible explanation of this greater improvement by participant 3 could relate to the level of competitive experience. Specifically, participants 1 and 2 were both international standard where as participant 3 had reached a territorial representative level. Intuitively, one would expect performance improvement to be lower in athletes with a higher competitive status, due to the greater skill level they already posses.

Although these performance enhancement figures support the credibility of the psychological skills intervention programme there were numerous overlapping data points between pre and post intervention phases. This could suggest caution in the interpretation of these findings. However, as noted by Rogerson and Hrycaiko (2002)

and Thelwell and Maynard (2003) many influencing variables effect performance in open skill-based classification sports. Although the performance measure used in this study was objective and sensitive at the individual level, some areas affecting performance were not considered. For example, the system examined whether the player was able to control a received pass but gave no scope for the quality of the incoming pass, a factor that undoubtedly effects the players chances of successful control. However, the use of the notation systems certainly provides scope for researchers to objectively asses individual performance within team based open-classification sports, an area currently lacking in intervention based research (McPherson, 2000; Rogerson & Hyracaiko, 2002; Thelwell & Maynard, 2003).

The social validation information provided additional information relating to the effectiveness of the intervention programme. Each player was motivated to improve their psychological preparation for performance and viewed this as an important factor. Further, each performer appeared satisfied with the intervention programme, this was an important consideration in light of the required time and energy each player needed to invest into the intervention programme. Specifically, there was potential for non-adherence to the psychological skills due to the very nature of the temporal approach to the intervention. However, the social validation data supported the usefulness of the intervention programme to the players. Finally, each player appeared satisfied with the performance enhancing qualities of the intervention programme.

These findings indicate it is beneficial for sport psychologists to intervene in a structured manor during the preparatory phases for competition. Specifically, the intervention programme was successful at restructuring anxiety symptoms players originally interpreted as negative towards performance, increasing the levels and frequencies of self-confidence, and decreasing the frequencies of cognitive anxiety throughout the preparation period. Further, these changes were associated with

increased performance levels in the competitive arena. However, although these benefits were apparent, it is important for the practitioner to be aware of the time and resource investment required to create such intervention programmes. It may not be logistically or practically suitable to utilise this approach in all environments.

At the individual level, the use of the preparatory booklet system provided opportunity for participants to reflect and record during the preparatory phases for competition, this enabled the construction of an intervention programme suited to their individual pre-performance experiences whilst maintaining control within the overall guidelines and framework of the study. Although not directly assessed through the social validation data, feedback from the participants suggested this was an important factor in contextualising the psychological skills into a personalised interest maintaining programme. Finally, the use of notation analysis as a performance measure provides the practitioner with the scope to objectively measure an individuals sporting performance within an open-based classification sport.

CHAPTER VII

SUMMARY, DISCUSSION AND CONCLUSIONS

7.1 INTRODUCTION

The final chapter of the thesis is separated into three sections. First, a summary section provides detail of the main aims of the research programme and outlines the key findings from each of the four studies. Second, the discussion section addresses the theoretical issues and the central practical implications derived from the research programme, the strengths and weaknesses of the studies and areas for future research in the domain of temporal anxiety. Finally, a conclusion section completes the chapter.

7.2 SUMMARY

The central purpose of the thesis was to examine in detail psychological preparation as a temporal event during the time leading up to competition. This aim was underpinned by the theoretical area most exposed to temporal research, namely the anxiety-performance relationship. Developments within Multidimensional Anxiety Theory and the integration of the dimension of directional perceptions (Jones & Swain, 1992; Jones, 1995) provided the foundation for investigation. Specifically, a lack of temporal research has been produced following the introduction of this important anxiety dimension (Jones, 1995). Further, in associated fields of general psychology, researchers have noted the ease with which humans can encode and record 'frequency' based affect information in comparison to 'intensity' based affect information, a point emphasised in temporal based paradigms (Diener et al., 1991; Kardum, 1999). Therefore, a temporal based research programme was designed to collectively examine

the intensity, direction and frequency dimensions of competitive anxiety symptoms during the preparation phases for competition.

The aims of the first two studies were to investigate whether the dimensions were sensitive to preparation based change-over-time fluctuations and examine potential between-subject variables which may moderate these responses over time. Study three attempted to elicit the psychological preparation routines used by athletes as mechanisms to overcome negative pre-performance symptoms during the time leading up to competition. Finally, study four examined whether a preparation based intervention programme could control negative symptom experiences and influence competitive sporting performance during the time leading up to competition.

7.21 STUDY 1

The rationale for study one was based on the lack of temporal research assessing the dimensions of direction and frequency during preparation time for competition. Further, in an attempt to elicit variables that moderated any change-over-time effects in the dimensions, skill level was chosen as a between-subjects variable. This selection was based on the known skill level differences observed in previous intensity based (e.g., Caruso et al., 1990); Perkins & Williams, 1998) and direction based studies (e.g., Jones et al., 1994; Jones & Swain, 1995) for times immediately before competition. As such, 82 male performers separated into National ($N = 37$) and Club ($N = 45$) level athletes completed the CSAI-2 modified to include the dimensions of direction and frequency at five pre-competition preparation times (7 days, 2 days, 1 day, 2 hours, 30 minutes). Results revealed no interactions, but highlighted main effects for time-to-competition and skill level. Specifically, the dimensions of intensity (cognitive anxiety, somatic anxiety and self-confidence) and frequency (cognitive anxiety, somatic anxiety and self-confidence) were subject to temporal fluctuations with greater time-to-

competition sensitivity being noted in the frequency dimension. However, skill level differences were only observed in the direction dimension. Specifically, National level performers indicated a more facilitative interpretation of their cognitive and somatic anxiety symptoms than their club level counterparts throughout the preparation time for competition. These findings supported the notion of assessing competitive anxiety symptoms as temporal events during the preparation phases for competition but indicated skill level was an insensitive moderating variable over these changes. Therefore, following scrutiny of the directional perceptions literature in sport and general psychology, it was proposed that interpretation itself (i.e., facilitative versus debilitative) may provide a more sensitive moderating variable over pre-competition preparation changes in the symptoms of anxiety.

7.22 STUDY 2

Study two continued the time-to-competition preparation based assessment of the anxiety symptom dimensions (intensity, direction, frequency) and utilised the between-subjects variable of symptom interpretation as a potential moderator over these responses. Rationale for the use of symptom interpretation was derived from findings in sport (Jones & Hanton, 2001; Perry & Williams, 1998), and academic test anxiety research (Raffety et al., 1997). In response to these aims, 60 participants separated into facilitators ($N = 20$), debilitators ($N = 20$) and mixed interpreters ($N = 20$) completed the CSAI-2 modified to include scales of direction and frequency at four pre-competition preparation phases (7 days, 2 days, 1 day, 1 hour). Results revealed no interaction effects, but highlighted main effects for time-to-competition and interpretation. Specifically, change-over-time fluctuations were noted in the dimensions of intensity (cognitive anxiety, somatic anxiety and self-confidence), direction (cognitive anxiety and somatic anxiety) and frequency (cognitive anxiety and self-confidence)

emphasising the temporal nature of symptom responses during preparation time for competition. Between-subject interpretation differences were characterised by debilitators experiencing lower intensities of self-confidence symptoms, more negative interpretations of cognitive and somatic anxiety, higher frequency of cognitive anxiety symptoms and lower frequency of self-confidence symptoms than the facilitators throughout the whole preparation period. These between-subject findings indicated that debilitators and facilitators were responding to competitive stress with different levels, interpretations and frequencies of anxiety and confidence during the preparation phases for competition. Further, the time-to-competition variations noted across both study one and two for the dimensions of intensity, direction and frequency indicated these symptoms fluctuated as competition approached. This raised questions regarding what triggers caused the onset and increase in these anxiety and confidence symptoms during the time leading up to competition and, importantly, what caused the facilitators and debilitators to respond with different levels, interpretations and frequencies of symptoms during the preparation time for competition.

7.23 STUDY 3

Study three investigated what caused the onset and increases in symptom occurrences during the time leading up to competition, and examined the preparation routines utilised by facilitators and debilitators which resulted in the different symptom responses as competition approached. In response to these aims a mixed method design was used. First, debilitators ($N = 5$) and facilitators ($N = 6$) labelled the thoughts and feelings they experienced during the 7 days leading up to competition. An ESM approach was used to signal data collection times where players recorded the thoughts and/or feelings they experienced, whether they interpreted these thoughts and feelings as positive or negative towards upcoming performance, and the percentage amount of

time they had experienced these symptoms. Additionally, in an attempt to elicit information on the mechanisms underpinning the responses, performers were also asked to describe what caused them to interpret the thought or feeling as positive or negative towards performance, and what triggered the thought or feeling to occur. This information was utilised to underpin probes in the second stage of the data collection. The second stage formed qualitative semi-structured interviews that progressed through the preparation time for competition and assessed the symptoms experienced (intensity, direction and frequency), the triggers of these symptoms, and the possible strategies used to overcome negative symptoms or stimulate positive symptoms.

Results of the interview data revealed that many of the symptoms experienced, and the triggers of these symptoms were similar for both the facilitators and debilitators. However, the facilitators utilised a refined sequence of psychological skills during certain phases of the preparation period which decreased the intensity and frequency of negative symptoms and restructured negative interpretations of pre-performance thoughts and feelings to symptoms that were perceived as internally controllable and positive towards performance. These skills were not used by the debilitators, which raised the question of whether a temporal psychological skills programme in line with that used by the facilitators be utilised by the debilitators to restructure their symptom interpretations during the preparation phases for competition.

7.24 STUDY 4

The final study of the thesis examined the implementation of a multimodal psychological skills intervention throughout preparation time for competition on the symptom responses (intensity, direction and frequency) of three elite female field hockey players debilitated by their pre-performance anxiety symptoms. A further aim of the study was to examine the effects of the intervention programme over competitive

field hockey performance assessed through the development of an objective notation analysis system. In response to these aims, a single-subject staggered multiple baseline across subjects design was utilised. Symptom responses (intensity, direction, frequency) were collected at four pre-competition phases (6 days, 2 days, 1 day, 1 hour) and individual field hockey performance was assessed throughout a 10-match English Hockey League Premier League fixture cycle. The intervention programme, comprising a combination of imagery, rationalisation and restructuring, goal setting and self-talk skills at set pre-competition preparation phases was introduced across the three participants in a staggered manor following matches 4, 5 and 6 of the 10-game cycle. Results revealed the intervention programme provided a positive influence over the symptoms of self-confidence intensity, cognitive anxiety, somatic anxiety and self-confidence direction, cognitive frequency and self-confidence frequency throughout the preparation time for competition. Additionally, the intervention also provided a positive influence over competitive field hockey performance. These findings provided a strong rationale for the use of intervention programmes specifically designed to improve psychological states during the preparatory phases leading up to competitive events.

7.3 DISCUSSION

The discussion section provides an overview of the theoretical issues emanating from the four studies, and provides an overview of the central implications derived from the findings. An insight into the strengths and weaknesses of the thesis and future research directions within temporal based anxiety symptom research draws the section to a close.

7.31 THEORETICAL ISSUES

The following section outlines the major theoretical issues that have arisen from the thesis and is separated into areas which discuss the notion of directional perceptions and 'facilitative' anxiety states, the dimension of frequency, and the temporal consequences of the research.

7.311 Directional Perceptions and 'Facilitative' Anxiety States

The first theoretical issue has implications across all four of the studies. Specifically, within all studies, the direction scale of the CSAI-2 has been used in some form and the final three studies of the programme utilised the direction scale of the CSAI-2 and/or CTAI-2 as a between-subjects selection scale. Although the choice of directional perceptions appears astute and sensitive for differentiating athletes responses to competitive stress during the preparatory phases for competition, several issues have recently been raised within the literature regarding directional perceptions as a concept.

Specifically, authors have suggested that the notion of 'facilitative' or 'positive' anxiety is somewhat of an oxymoron realising debate amongst anxiety researchers (Burton & Naylor, 1997; Hanton & Mellalieu, in press; Hardy, 1997, 1998; Jones & Hanton, 2001; Mellalieu, Hanton & Jones, 2003). The first view postulates that high levels of cognitive anxiety can be perceived as facilitative towards performance (Hardy, 1997, 1998; Jones & Hanton, 2001). Specifically, Hardy and associates refer to experiential (e.g., Mahoney & Avener, 1977) and empirical evidence to support this perspective (e.g., Hardy & Parfitt, 1991; Edwards & Hardy, 1996; Woodman et al., 1997). Further, as explanation for these effects Hardy and colleagues cite the main tenets of processing efficiency theory which purports that high levels of cognitive anxiety can provide a motivational influence over the performer thus indicating a facilitative aspect to the symptoms experienced (cf. Eysenck, 1992; Eysenck & Calvo,

1992). The opposing view, asserted by Burton and Naylor (1997), draws upon Lazarus' (1991) cognitive-motivational-relational model of emotion indicating that negative expectancies of goal achievement and coping can only manifest anxiety symptoms that result in negative performance relationships. These authors further contended that performers can illicit positive expectancies of goal attainment which leads to emotions that are beneficial for performance such as 'excitement' or 'challenge'. Burton and Naylor (1997) commented that the CSAI-2 which incorporates the direction scale essentially measures these positive orientated states rather than anxiety *per se*. In fact, both sides of the debate indicate that current measures of emotional states suffer conceptual and measurement limitations (Jones & Hanton, 2001; Lane & Terry, 2000). Jones and Hanton (2001) recently indicated the CSAI-2 is not exempt from these problems, and outlined a positional statement regarding the relevance of the debate to the scale suggesting:

> 'The CSAI-2 may not measure competitive anxiety directly, only the symptoms associated with the response. To clarify, we believe that if a negative score on the direction scale is revealed, then this signifies a state of anxiety. If a positive score is found, this points to another state previously mislabelled as anxiety' (p. 393).

Therefore, the findings of the current thesis could be questioned in light of these recent developments. However, it would be unwise to disregard the main findings relating to the way facilitators and debilitators react to competitive stress during the preparation times for competition. Although the recent debate suggests the intensity scale of the CSAI-2 may not be measuring competitive anxiety directly, as Jones and Hanton (2001) indicated the inventory does measure the '*symptoms associated*' with anxiety. Further, the relevance of this debate to the findings of the thesis could be questioned. Specifically, as the thesis progressed 'direction' became a sensitive between-subjects variable capable of distinguishing between performers who experienced different levels and frequencies of pre-performance anxiety symptoms, findings

supported through the quantitative approach adopted in study two and the qualitative approach utilised in study three. Therefore, even though current debate within anxiety research indicates the concept of 'facilitative' anxiety maybe a paradox, and we may be unsure of the exact state we are measuring, the direction scale of the CSAI-2 and the categorisation of debilitators and facilitators was sensitive enough to distinguish between performers with differential reactions competitive stress as the event approached. Although this debate should be considered when interpreting the findings of this thesis it is difficult for the results to provide any support for either side of the argument. Indeed, it was not the aim of this thesis to attempt to provide foundation, nor resolve the ongoing current debate. However, it is important to note that the concepts require future research attention to produce a conceptual position as to 'what we are measuring', however, this should not devalue the importance of examining the approaches debilitators and facilitators adopt during the preparation time for competition.

This thesis has provided consistent support for the sensitivity of directional interpretation as a moderator over both the intensity and frequency of anxiety symptoms and intensity and frequency of self-confidence symptoms during the preparation time for competition. The use of this between-subjects factor has remained limited in competitive anxiety research; these interesting findings suggest future research attention should be accorded to utilising the direction scale as a sensitive moderating variable over anxiety responses. The findings of the studies two and three clearly indicated that different psychological states were experienced as a function of interpretation (i.e., facilitative vs. debilitative) during the preparation time for competition. Further, in addition to emerging as a sensitive moderator, the findings of this thesis supported the measurement of the directional perceptions dimension within competitive anxiety research. Specifically, both the quantitative and qualitative research methods employed

revealed that perceptions of anxiety were subject to temporal changes through the preparation time for competition and were modifiable through the intervention programme of study four. This theoretical implication indicates that researchers should continue to examine directional perceptions as an additional dimension of the anxiety response, over an above the intensity alone conceptualisation advocated in Martens et al.'s (1990) multidimensional anxiety theory.

7.312 The Dimension of Frequency

A second theoretical issue relates to the use of the frequency dimension within the thesis. Specifically, results indicated that frequency scores were subject to greater change-over-time fluctuations than intensity scores (study 1 and 2), showed more comprehensive between-subject differences than intensity scores (study 2) and were more sensitive to intervention effects than intensity scores (study 4). Traditionally, sport psychology researchers interested in mood, affect and emotion have focused on the quantitative dimension of intensity and the magnitude of the response and have failed to consider the temporal aspects of the frequency dimension. The sensitive findings outlined above for the frequency dimension indicates that affect, mood, and emotion research within sport psychology should integrate this dimension to provide a fine-grained perspective of an athletes symptom response. Recently, general psychology has advocated the importance of considering both frequency and intensity components of the response with the notion that this expanded approach provides a clearer and more reliable picture of an individual's response to a stressful situation (e.g., Diener et al. 1991; Kardum, 1999). The integration of these two dimensions with this thesis certainly supports this position and has provided a detailed overview of the symptoms experienced in the preparation time for competition.

A further rationale general psychology provides to support the use of a frequency dimension relates to the notion that humans are more capable of encoding and reporting frequency of affect than intensity of affect. Accuracy of measurements for both the intensity and frequency dimensions were not directly assessed in this thesis. However, at the anecdotal level, throughout the qualitative procedures adopted in study three, most participants found recalling information relating to the frequency of responses an easier task than recounting intensity information.

At the conceptual level, few competitive anxiety theories or models refer to a 'frequency' component of the response. Although Hanin (1997) within the IZOF model, and Cerin et al. (2000) within the recent interactional model of stress as applied to athletic competition acknowledge a frequency dimension, the acknowledgement remains rather courteous. This author suggests that the interesting findings emanating from the thesis should spur researchers to integrate a frequency component of the response, especially if the apparent shift towards a temporal, process orientated approach to the stress response relationship becomes accepted within sport psychology (cf. Lazarus, 1999, 2000; Mellalieu, 2003). Further, it is the author's opinion that frequency information should not be constrained to the anxiety domain; incorporation of the dimension into the conceptual areas of affect, mood, and emotion would provide associated areas of sport psychology with a more accurate picture of the athlete's psychological state during the preparation time for competition. Specific to research in competitive anxiety, work needs to focus on the dimension to explore the performance-variance properties of the frequency dimension and explore whether incorporating intensity and frequency enables a greater level of performance variance to be explained. However, at an intuitive level this dimension could be vital, essentially, the frequency dimension encompasses 'the amount of time' an athlete experiences cognitions relating to anxiety symptoms (i.e., cognitive/somatic). This raises questions relating to the

dimensions that previous anxiety research has focused upon (i.e., intensity/direction). This author contends that asking performers to rate the level and direction of the symptoms experienced could prove inadequate without consideration to measurements of frequency. Put simply, if the athlete is not thinking about the symptom with any great frequency (i.e., amount of time), it could be argued that the level and interpretation of that symptom remain inconsequential.

7.313 Temporal Effects

A key finding across the thesis relates to the temporal nature of symptom responses as competition approaches. Specifically, across both quantitative and qualitative studies the intensity, direction and frequency of symptoms were shown to vary as competition approached. These findings provide support for the notion that stress processes are dynamic in nature (Lazarus, 1999), and that symptom responses are a conditioned response to the environmental stimuli associated with competition (Martens et al., 1990). However, there is a possibility that changes in these responses are not only conditioned to competition, but that they are conditioned to competition preparation. The findings of study three of this thesis indicate that several environmental, organisational and personal stimuli acted as the triggers that invoked changes in the intensity and frequency of anxiety and confidence symptoms the players experienced during the time leading up to competition. This approach provides a possible conceptual distinction between states and responses that are deemed positive for performance preparation and those that are positive for performance.

Collectively, the findings of this thesis support the process-orientated view of stress outlined in general psychology (cf. Lazarus) and the interactional model of stress as applied to athletic competition (cf. Cerin et al., 2000). Further research attention is required in this area exploring additional psychological responses during the preparation

time for competition. The findings outlined here provide support for the segregation of pre-competition preparation into several temporal phases as the competition draws closer. Further, the prescribed intervention undertaken within this thesis provides the practitioner with an in-depth preparation based programme derived from theoretical research.

7.32 PRACTICAL IMPLICATIONS

The results of this thesis indicate that the intensity, direction and frequency of pre-competitive anxiety symptoms do change during the preparation time for competition. Study three revealed that for team based sports such as field hockey where performance carries through a seven day competitive cycle these changes focused around three distinct pre-performance phases. Therefore, it is important for practitioners to construct psychological skills interventions that mirror changes within these phases in order to regulate or protect the onset and accumulation of negative symptoms during the preparation phases for competition. Traditional intervention based research within sport psychology (e.g., Hanton & Jones 1999b; Maynard et al., 1995a, b) has focused on intervention times proximal to competition and paid little regard to the process of psychological preparation for performance. The rationale for all previous temporal anxiety research is based around the notion that anxiety symptoms will vary as competition approaches, and as such, interventions by sport psychologists should account for these temporal changes (cf. Martens et al., 1990). However, although research and theory advocates this approach, temporal research into the actual psychological strategies performers utilise to overcome these varying symptom fluctuations as competition approaches has until now remained scarce. The findings within this thesis indicate that the practitioner should attempt to move into this wider context accounting for temporal fluctuations of symptoms and devote time and effort

with the performer to create intervention programmes that aid psychological preparation for performance.

Study three indicated that the skills most likely to decrease negative symptoms (intensity and frequency), restructure debilitative symptom interpretations, and increase positive symptom occurrences (intensity and frequency) included the use of imagery routines, rationalisation and restructuring skills, goal setting skills and positive self-talk. However, and importantly, subtle differences existed in the application of these skills during each phase of the preparation period. For example, the use of imagery skills to review negative aspects of performance followed by a counter replacement of a similar positive performance based image by the facilitators at the 7 to 5 day pre-competition phase provides the practitioner with a detailed indication of psychological skill usage at such preparation times. This compared to the integration of imagery routines by the facilitators at times close to competition (i.e., on match day). Here, the imagery routines were brief, situation and skill specific, and were conducted at certain time windows where players were presented with a conducive time to work through their routine (i.e., quiet times during travel to competitive venue an/or changing room team talks).

The final study of the thesis indicated that utilisation of temporal based multi-modal psychological skills programmes provided a positive influence over both pre-performance psychological states and competitive performance. It is important to recognise from this final study that practitioners working in open skilled classification sports should attempt to utilise performance measures that are sensitive to individual player requirements (i.e., notational analysis systems) rather than subjective and global in nature. Finally, at the more general level, the inclusion of intensity, direction and frequency scales within the present study emphasises that practitioners should integrate a fine-grained measurement approach within the measurement of pre-performance symptoms (cf. Woodman & Hardy, 2001). Further, the use of the idiographic labelling

approach utilised in study three emphasises that the practitioner should consider individualised assessments of pre-performance symptoms (cf. Jones & Hanton, 2001).

7.33 STRENGTHS OF THE RESEARCH PROGRAMME

Possible strengths within the research programme included the theory into practice continuum throughout the progression of studies. Specifically, it was an aim of the programme to investigate possible underlying causes of anxiety and confidence changes during the preparation times for competition in the initial studies of the thesis and attempt to moderate these symptoms in the later stages of the programme. Thus attempting to move the research into the 'real world' context of the 'practising' sport psychologist. The author believes this transition has been completed through the collection of studies presented. Further, the utilisation of several methodologies to answer the research question and underpin this transition provides an in-depth understanding into the anxiety symptom experiences of performers during the preparation phases for competition. Specifically, three types of research methods were used in the research; studies one and two adopted a nomothetic quantitative approach, study three adopted an idiographic qualitative perspective utilising a combination of ESM and retrospective interviews and the final study of the programme focused on a single-subject multiple baseline design. This mixed method approach sits comfortably with recommendations indicating researchers should utilise a mixed method approach to provide a deeper understanding relating to the area of competitive anxiety (Hardy et al., 1996; Jones, 1995; Woodman & Hardy, 2001).

The temporal nature of the research programme answers recent calls for anxiety researchers to assess stress reactions as processes that have the opportunity to change-over-time (cf. Cerin et al., 2000; Lazarus, 1999, 2000). Further, the integration of the qualitative and intervention based approaches to studies three and four provides a

starting point to help practitioners identify prescriptive points and possible intervention strategies that can be utilised throughout the preparation period for competition (cf. Mellalieu, 2003). Additionally, the use of an individualised field hockey notation analysis system provides a possible template for researchers interested in assessing the performance effects of psychological skills interventions. This type of research design is proliferated with studies assessing intervention effects in closed skill individual based sports, the integration of notation analysis permits the researcher to step outside these constraints and assess the impact of intervention programmes in the more challenging environment of team-based open class sports. Finally, no previous research has integrated the three dimensions of intensity, direction and frequency into one research design. The examination of competitive anxiety responses across these dimensions within this thesis has provided a fine-grained measurement perspective into the symptoms experienced by the performer (cf. Woodman & Hardy, 2001).

7.34 LIMITATIONS OF THE RESEARCH PROGRAMME

Although the thesis has adopted a fine-grained measurement perspective, perhaps the most limiting factor to the research relates to the use of the CSAI-2 and specifically the direction scale. The limitations to the inventory and concerns over the conceptualisation of anxiety as a 'facilitative' phenomenon were addressed in Section 7.311. Although attempts have been made by the author to emphasise that the research may not be measuring 'facilitative' anxiety, because such a concept may not exist, the sensitivity of the direction scale to distinguish between performers with differing anxiety symptoms is apparent. Future research needs to examine 'what' it is we are exactly measuring with this scale and re-address the conceptualisation of the pre-performance symptoms experienced by competing athletes. However, until such

research takes place caution could be advised in the interpretation of the overall findings.

A further weakness within the thesis relates to the focus on female field hockey players within the latter two studies of the thesis. Although field hockey has remained an under researched sport, despite its Olympic status, both the focus upon it, and the use of one gender limits the generalisability of the findings. Specifically, it is not clear whether these findings are exclusive to such groups. What is clear is that the transferability of the temporal period used for investigation is limited to sports which operate over a 7 day competitive cycle; an issue addressed in the future research section.

7.35 FUTURE RESEARCH

Several areas of future research emanate from the thesis. First, there is a need for anxiety researchers to arrive at conceptual consensus regarding the notion of 'facilitative' anxiety states. Perhaps avenues for research should attempt to move away from the 'traditional' anxiety based approach to pre-performance symptom assessment and move into a more idiographic assessment methods as used in study three and by Jones and Hanton (2001). Specifically, this line of research, underpinned by Hanin (1997), indicated that the sole focus on 'anxiety' variables is too narrow a focus for the pre-performance symptoms experienced by competing athletes. This research foci has traditionally been driven by research developments within clinical psychology settings. Examination of the thought and feeling labels recorded in study three and those noted by Jones and Hanton (2001) indicated that many differ from the traditional labels utilised in anxiety based research (i.e., anxious, worried, nervous). Research should attempt to construct a sport specific scale which assesses the thoughts and feelings experienced by competing athletes during the preparation time for competition.

On a related theme, the findings for the frequency dimension within the thesis have proved insightful. Specifically, the results indicated that frequency scores were subject to greater change-over-time fluctuations than intensity scores (study 1 and 2), showed more comprehensive between-subject differences than intensity scores (study 2) and were more sensitive to intervention effects that intensity scores (study 3). Therefore, the author feels it is imperative for such studies to allude to the frequency dimension of the response. Indeed, following views in emotion based research it should be imperative for researchers to assess whether sports performers find it easier to encode frequency of affect than intensity. If this remains true, one could argue for frequency assessments to supersede the traditional intensity based measurement approach within measures of affect in sport psychology. Additionally, this research programme has continually advocated a fine-grained measurement approach to competitive anxiety symptoms and included the dimensions of intensity, direction and frequency. However, the nature of the directional perceptions paradigm resulted in athletes rating whether they interpreted their symptom intensity as facilitative or debilitative towards performance. The sensitivity and rise to prominence of this dimension in temporal based designs indicates that future research should consider assessing the directional interpretation of these frequency symptoms. A further issue for researchers to consider relates to the frequency-performance relationship. Specifically, research has examined the relationship between competitive performance and intensity and/or direction of symptoms but no research has addressed these concerns for frequency. Clearly, researchers need an insight into whether the dimension can predict performance variance prior to investing time and effort before embarking on further research studies.

Finally, the use of the temporal paradigm within the current research programme has provided the framework to distinguish between preparation based and performance based states. Future research should attempt to further this research into sports involving

different preparation based periods away from the 7 day pre-competitive cycle used in the current design.

7.4 CONCLUSIONS

The purpose of this thesis was to investigate sport performers' psychological preparation for competition with reference to the competitive anxiety dimensions of intensity, direction and frequency. Results indicated all three dimensions were sensitive to temporal pre-performance changes, and that facilitators and debilitators differed in their symptom responses and psychological preparation routines as competition approached. Further, the utilisation of a multimodal psychological skills intervention throughout the preparation time for competition provided a positive influence over pre-performance psychological states and competitive performance. Although several unanswered questions remain, the author believes this research programme has enhanced the conceptual and practical understanding of anxiety for sport psychology researchers and practitioners. Finally, and importantly, the author believes the research has made the transition from theory into practice, the essential aim of sport psychology as a discipline.

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A TEMPORAL INVESTIGATION INTO THE DIMENSIONS OF COMPETITIVE ANXIETY: THEORY INTO PRACTICE

(VOLUME 2: Appendices)

Owen M. Thomas

A thesis submitted in partial fulfilment of the requirements of Sheffield Hallam University for the degree of Doctor of Philosophy

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TABLE OF CONTENTS

APPENDICES

The questionnaires contained in the following booklet are concerned with certain aspects of your sporting experience; the booklet is divided into several sections. Section **1** contains a general information sheet that can be completed **at any convenient time** before the game. The following sections contain a questionnaire to be completed at the following times :

Section 2 : 7 Days before the competition/match

Section 3 : 2 Days before the competition/match

Section 4 : 1 Day before the competition/match

Section 5 : 2 Hours before the competition/match

Section 6 : 30 Minutes before the competition/match

Please Remember

*There are no right or wrong answers

*Respond as honestly as you can

*Do not spend too much time on any one question

All responses are <u>strictly confidential</u>

Please feel free to contact me on either

01142 255634/01709 868089

if you require any further information

Section 1: GENERAL INFORMATION

* Name : _____

* Age : _____

* Contact Address : _____

_____

_____

_____

* Phone N^{o} : Home _____ Mobile _____

* Sporting Activity : _____

* What is the **highest standard** you have competed at? (please circle **one**):

*Club *Collegiate *County *Regional

*National schools *National U21 *National emerging

*National B squad *Full national squad

*Other please indicate :_____

Section 2.

Please complete the questionnaire overleaf

7 Days

before the competition/match.

Please bear the following instructions in mind and **THEN** complete the questionnaire at the specified time.

IMPORTANT INSTRUCTIONS

The effects of highly competitive sports can be powerful and very different among athletes. The inventory overleaf measures how you feel **right now** about the upcoming competition. Please complete the inventory as honestly as you can. Sometimes athletes feel they should not admit to any nervousness, anxiety or worry they experience before competition because this is undesirable. Actually, these feelings are common, if you have butterflies or other feelings that you know are signs of anxiety, please indicate them accurately on the inventory. Equally, if you feel calm and relaxed indicate these feelings as accurately as you can. Your answers will not be shared, and we will be looking at group responses only.

The inventory is divided into **3** sections; section **1** asks you to rate the **level** of the thoughts and/or feelings you are experiencing; section **2** asks whether you view the level of the thought/feeling as **positive (facilitative)** or **negative (debilitative)** towards upcoming performance; section **3** asks how **frequently** the thought/feeling is occurring at **this** time. Please read each statement carefully and circle the appropriate number of response in each section before moving onto the next item. Please indicate how you feel **RIGHT NOW** in relation to the upcoming competition.

	Not at all	Somewhat	Moderately so	Very much so	Very negative (debilitative)					Unimportant		Very positive (facilitative)		Never						All of the time
1. I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
4. I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
16. I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
18. I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
19. I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
27. I'm confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7

Section 3.

Please complete the inventory overleaf

2 Days

before the competition/match.

	Not at all	Somewhat	Moderately so	Very much so	Very negative (debilitative)						Unimportant	Very positive (facilitative)		Never						All of the time
1. I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
4. I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
16. I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
18. I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
19. I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
27. I'm confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7

Section 4.

Please complete the inventory overleaf

1 Day

before the competition/match.

	Not at all	Somewhat	Moderately so	Very much so	Very negative (debilitative)					Unimportant		Very positive (facilitative)		Never						All of the time
1. I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
4. I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
16. I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
18. I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
19. I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
27. I'm confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7

Section 5.

Please complete the inventory overleaf

1 Hour

before the competition/match.

	Not at all	Somewhat	Moderately so	Very much so	Very negative (debilitative)					Unimportant		Very positive (facilitative)		Never						All of the time
1. I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
4. I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
16. I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
18. I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
19. I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7
27. I'm confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3			1	2	3	4	5	6	7

Section 6.

Please complete the inventory overleaf

30 Minutes

before the competition/match.

	Not at all	Somewhat	Moderately so	Very much so	Very negative (debilitative)				Unimportant		Very positive (facilitative)	Never						All of the time
1. I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
4. I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
16. I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
18. I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
19. I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
27. I'm confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7

Appendix (3.2) Study 1: Data Pre-screening, Assumption Testing, Repeated Measures MANOVA and Follow -up Testing.

(A3.21) Outline to the Analyse

In order to determine the possible effects of skill level (club *vs* national) may have imposed on anxiety and confidence during the time leading up to competition, a series MANOVA's with repeated measures were conducted. Three separate 2 (skill group) x 5 (time-to-competition) MANOVA with repeated measures on the second factor (one per dimension of intensity, direction and frequency) were applied to the CSAI-2 data. Cognitive anxiety, somatic anxiety and self-confidence acted as the dependent variables across all time periods, with skill level acting as the independent variable within each analysis. All calculations including assumption testing and MANOVA/post-hoc analyse were conducted using SPSS for Windows Release 10.0.0.

(A3.22) Assumption Testing and Justification

Several assumptions are associated with the use of MANOVA with the fundamental ones including; cell size, multivariate normality, linearity, homogeniety of variance-covariance matrices and multicollinearity (Coakes & Stead, 1999; Stevens, 1992; Tabachnick & Fidell, 1996). Each of the above assumptions was tested or met through the following analyse or justifications.

(A3.221) Cell Size

MANOVA ideally requires equal cell sizes within the analysis. For the current analyse cell sizes were not equal (club level $N = 45$, national $N = 37$). However, a ratio of largest to smallest cell size of less than 1-1.5 should result in no problems within the analysis (Coakes & Stead, 1999; Tabachnick & Fidell, 1996). Therefore, although not equal, the skill level cell size splits were not of concern. Further, associated to the homogeneity of variance-covariance matrices assumption is the ratio DV's to cases in each cell. In short, each cell requires more cases than DV's for adequate analysis (Tabachnick & Fidell, 1996). The present analyse each contained 9 DV's with the smallest cell size equalling 37 suggesting no reason for concern.

(A3.222) Normality

Multivariate normality was attained through the creation of more than 20 degrees of freedom for error in the univariate case. The present analyse created a minimum of 80 degrees of freedom for error for between-subject effects and a minimum of 188[1] degrees of freedom for error for within-subject effects in the univariate case. Further, the use of more than 20 cases in the smallest cell, even with the associated unequal *N* in each group added to assurances that normality should be present in each data set (Tabachnick & Fidell, 1996).

Associated to the assumption of normality within MANOVA is the identification of outlying cases within each DV of the analysis. As such, the Mahalanobis distance test was used to identify multivariate outliers with the critical value of chi-square for 9 DV's equalling 27.91 (α 0.001). With this in mind, no cases were identified as outliers in the data set. Therefore, the above justifications and testing suggested the sample data satisfied the criteria for multivariate normality.

(A3.223) Linearity

MANOVA assumes linear relationships between all pairs of DV's (Coakes & Stead, 1999; Tabachnick & Fidell, 1996). As such, the recommended process of within cell scatter plots between each DV was visually assessed. Several DV's showed associations, however this was not wholly unexpected due to the theoretical relationships between the anxiety and confidence components. As such, it was deemed safe to proceed with the MANOVA analysis (Cookes & Stead, 1999, Tabachnick & Fidell, 1996).

(A3.224) Homogeneity of Variance-Covariance Matrices

MANOVA assumes that the variance-covariance matrices within each cell of the design are equal (homogeneous) across the sampled population (Coakes & Stead, 1999; Stevens, 1992; Tabachnick & Fidell, 1996). To test the assumption at the multivarite level Box's *M* test can be utilised. Tabachnick and Fidell (1996) offer the following advice regarding the application of the test. Equal sample sizes offer robustness against the assumption so one can disregard the result of the Box's *M* test. However, if sample sizes are unequal Box's *M* test must be considered with the alpha level set at $p<0.001$.

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[1] The degrees of freedom for error listed for the within-subject effects are following the application of the Green-house Geisser correction factor for sphericity.

Therefore, for the current analysis sample sizes within each cell were not equal and Box's *M* test must be applied. Inspection of the test results realised no significance levels greater than 0.001 suggesting homogeneity of variance-covariance at the multivariate level (view output for an example of the application of Box's *M*). However, Pillia's Trace was chosen as the most appropriate test statistic due to its robustness over possible assumption violations (Field, 2000; Tabachnick & Fidell, 1996).

Additionally, Coakes and Stead (1999) advocate the testing of homogeneity of variance at the univariate level on each DV. Tabachnick and Fidell (1996) and Field (2000) have recently criticised the use of formal tests of homogeneity of variance suggesting they are too strict and too highly influenced by nonnormality. In response, they advocate the use of the F_{max} ratio calculated between the largest and smallest cell variance within each group. In short, when cell sizes are approximately equal an F_{max} ratio of up to 10 is considered acceptable. Therefore, F_{max} ratio's were calculated across all DV's with the variance proportions (highest to lowest) compared. All ratio's attained the suggested standard (view output for an example of *Fmax* ratio calculations).

(A3.225) Multicollinearity and Singularity

Multicollinearity and singularity can cause problems when correlations amongst the DV's are high (i.e., 0.9 or greater). In short, when variables are multicollinear or singular they contain redundant information and can compromise the test if included in the same analysis (Tabachnick & Fidell, 1996). Therefore, the collinearity diagnostics programme incorporated into SPSS was utilised to test the assumption. Criteria for multicolinearity are a conditioning index >30 and more than two variance proportions >.50 for a given root number (Tabachnick & Fidell, 1996). Singularity screening occurs through running the programme and establishing whether the computer processes the analysis. If singularity is present, the programme by default 'aborts' the run of the test (Tabachnick & Fidell, 1996). SPSS successfully ran each analysis indicating no concern of singularity, and the conditioning indexes and root variance proportions for each DV reached the outlined criteria-suggesting acceptance of the assumption requirements (view output for an example of mulitcollinearity testing).

(A3.23) Follow-up and Post-hoc Pairwise Comparisons

The identification of significant main effects was followed up with one-way ANOVA testing for either between-subject effects of skill differences or within-subject

repeated measures of time-to-competition. Assumptions of univariate homogeneity of variance were covered in the previous MANOVA analysis. Related to the repeated measures analysis, Mauchley's test was conducted to test for violations of sphericity. The advent of a significant test statistic was addressed through the use of the Greenhouse Geisser Epsilon adjustment to correct the degrees of freedom prior to assessing the significance of *F* (Field, 2000; Roberts & Russo, 1999). Additionally, the use of MANOVA and the realisation of significant effects are suggested to protest against the use of multiple ANOVA's and the possibility of committing a type I error. As such, Bonferroni corrections were not applied to the ANOVA *F*-ratio's (Tabachnick & Fidell, 1998). The identification of significant mean differences for between effects and within repeated measures effects were followed with post-hoc pairwise comparisons. In all cases the Bonferroni method was preferred. This primarily related to the number of comparisons made in the post-hoc analysis (Roberts & Russo, 1999) and the violation of the sphericity assumption in the within subjects repeated measures analysis (Field, 2000).

(A3.24) Output Summary

Due to the volume of output produced from SPSS during the procedures of assumption testing, MANOVA, follow-up ANOVA and paiwise comparison testing, only one example of a full analysis (both between and within) will be presented here. However, the pairwise comparisons showing significance were not tabulated in the results section of Chapter three (see Section 3.54); therefore, all pairwise comparison data for follow-up ANOVA indicating significant effects will be presented here.

Variance and Fmax Ratios Intensity - Grouping Variable = Skill Level

	skill level		Statistic	Fmax ratio
CA-1	National	Mean	21.9730	1.2288
		Variance	43.138	
	Club	Mean	22.8889	
		Variance	53.010	
CA-2	National	Mean	21.1622	1.3708
		Variance	37.806	
	Club	Mean	23.7556	
		Variance	51.825	
CA-3	National	Mean	22.7838	1.1155
		Variance	32.730	
	Club	Mean	25.1111	
		Variance	36.510	
CA-4	National	Mean	22.4595	1.0406
		Variance	38.366	
	Club	Mean	23.4000	
		Variance	39.927	
CA-5	National	Mean	25.5676	1.1760
		Variance	30.308	
	Club	Mean	26.0444	
		Variance	35.634	
SA-1	National	Mean	20.4865	1.1209
		Variance	34.979	
	Club	Mean	18.5111	
		Variance	39.210	
SA-2	National	Mean	19.8919	.9963
		Variance	40.210	
	Club	Mean	17.9333	
		Variance	42.336	
SA-3	National	Mean	22.0270	1.6238
		Variance	29.083	
	Club	Mean	20.0000	
		Variance	47.227	
SA-4	National	Mean	22.5135	1.0172
		Variance	56.590	
	Club	Mean	21.7778	
		Variance	55.631	
SA-5	National	Mean	26.0811	1.1901
		Variance	27.632	
	Club	Mean	26.0222	
		Variance	32.886	
SC-1	National	Mean	25.9189	1.1973
		Variance	30.965	
	Club	Mean	25.2889	
		Variance	37.074	
SC-2	National	Mean	23.0270	1.1067
		Variance	53.305	
	Club	Mean	26.4889	
		Variance	48.165	
SC-3	National	Mean	24.2703	1.3625
		Variance	41.092	
	Club	Mean	23.9778	
		Variance	30.159	
SC-4	National	Mean	25.0000	1.2314
		Variance	41.889	

	skill level		Statistic	Fmax ratio
SC-4	Club	Mean	24.7333	
		Variance	34.018	
SC-5	National	Mean	23.0541	1.5537
		Variance	38.830	
	Club	Mean	22.6889	
		Variance	24.992	

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index
1	1	6.845	1.000
	2	1.611	2.061
	3	1.122	2.470
	4	1.068	2.532
	5	.836	2.862
	6	.749	3.024
	7	.645	3.257
	8	.606	3.361
	9	.562	3.489
	10	.407	4.099
	11	.379	4.250
	12	.318	4.638
	13	.272	5.020
	14	.262	5.114
	15	.179	6.191
	16	.139	7.013

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions										
		(Constant)	1wkCogDirCSAI2	1wkSomDirCSAI2	1wkSlfconDirCSAI2	2dayCogDirCSAI2	2daySomDirCSAI2	2daySlfconDirCSAI2	1dayCogDirCSAI2	1daySomDirCSAI2	1daySlfconDirCSAI2	2hrCogDirCSAI2
1	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	2	.00	.10	.06	.01	.06	.05	.00	.01	.00	.00	.01
	3	.00	.03	.00	.19	.07	.06	.00	.00	.00	.01	.01
	4	.01	.00	.31	.03	.02	.00	.01	.01	.00	.06	.03
	5	.00	.43	.00	.10	.01	.03	.05	.00	.00	.01	.01
	6	.00	.01	.00	.02	.01	.00	.13	.02	.03	.03	.01
	7	.00	.04	.03	.01	.04	.05	.00	.02	.00	.01	.04
	8	.01	.04	.19	.19	.00	.02	.02	.01	.00	.01	.08
	9	.00	.05	.10	.00	.12	.16	.05	.04	.01	.22	.00
	10	.00	.00	.13	.11	.15	.05	.23	.02	.00	.14	.03
	11	.02	.00	.13	.04	.14	.00	.10	.02	.07	.05	.05
	12	.01	.00	.01	.16	.23	.46	.14	.03	.02	.31	.00
	13	.13	.09	.01	.00	.01	.00	.01	.15	.05	.06	.24
	14	.08	.15	.00	.00	.07	.06	.08	.66	.09	.01	.06
	15	.03	.00	.01	.10	.00	.04	.00	.00	.21	.07	.39
	16	.70	.05	.03	.00	.07	.00	.18	.00	.49	.00	.03

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions				
		2hrSomDirCSAI2	2hrSlfconDirCSAI2	30minCogDirCSAI2	30minSomDirCSAI2	30minSlfconDirCSAI2
1	1	.00	.00	.00	.00	.00
	2	.01	.01	.01	.02	.01
	3	.00	.09	.01	.00	.03
	4	.00	.01	.01	.01	.00
	5	.03	.01	.01	.00	.02
	6	.06	.04	.04	.00	.16
	7	.18	.01	.00	.13	.16
	8	.00	.34	.00	.01	.01
	9	.00	.01	.02	.08	.01
	10	.00	.35	.00	.01	.09
	11	.06	.06	.07	.17	.15
	12	.00	.05	.00	.01	.15
	13	.38	.00	.02	.09	.13
	14	.07	.01	.01	.04	.05
	15	.03	.00	.64	.31	.00
	16	.15	.01	.15	.12	.01

a. Dependent Variable: skill level

MANOVA - Direction

* * * * * * A n a l y s i s o f V a r i a n c e * * * * * *

82 cases accepted.
0 cases rejected because of out-of-range factor values.
0 cases rejected because of missing data.

1 design will be processed.

- -

CELL NUMBER
1 2
Variable
SKILL 1 2

Cell Means and Standard Deviations
Variable .. COG1

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	11.027	11.627	37
SKILL	Club	.222	12.340	45
For entire sample		5.098	13.117	82

- -

Variable .. COG2

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	10.514	12.057	37
SKILL	Club	4.400	14.880	45
For entire sample		7.159	13.938	82

- - - - - - - - - - - - - - - - - - - -

Variable .. COG5

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	9.541	12.393	37
SKILL	Club	6.067	11.696	45
For entire sample		7.634	12.066	82

- -

Variable .. SOM1

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	6.297	11.508	37
SKILL	Club	-.778	14.119	45
For entire sample		2.415	13.405	82

- -

Variable .. SOM2

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	8.919	10.856	37
SKILL	Club	4.711	13.356	45
For entire sample		6.610	12.398	82

- -

Variable .. SOM3

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	12.189	8.246	37
SKILL	Club	6.956	8.985	45
For entire sample		9.317	8.996	82

- -

Variable .. SOM4

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	10.270	10.668	37
SKILL	Club	5.867	12.170	45
For entire sample		7.854	11.658	82

- -

Variable .. SOM5

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	8.649	12.667	37
SKILL	Club	7.156	11.876	45
For entire sample		7.829	12.186	82

- -

Variable .. SC1

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	2.730	14.996	37
SKILL	Club	8.489	13.055	45
For entire sample		5.890	14.172	82

- -

Variable .. SC2

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	7.946	13.654	37
SKILL	Club	10.844	10.278	45
For entire sample		9.537	11.931	82

- -

Variable .. SC3

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	10.189	9.997	37
SKILL	Club	7.022	11.852	45
For entire sample		8.451	11.101	82

- -

Variable .. SC4

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	8.189	14.458	37
SKILL	Club	7.222	12.297	45
For entire sample		7.659	13.240	82

- -

Variable .. SC5

FACTOR	CODE	Mean	Std. Dev.	N
SKILL	National	10.216	11.086	37
SKILL	Club	6.844	12.879	45
For entire sample		8.366	12.148	82

- -

Multivariate test for Homogeneity of Dispersion matrices

Boxs M = 170.96270
F WITH (120,18342) DF = 1.13675, P = .146 (Approx.)
Chi-Square with 120 DF = 137.52793, P = .131 (Approx.)

- -

* * * * * * A n a l y s i s o f V a r i a n c e -- design 1 * * *

EFFECT .. SKILL

Multivariate Tests of Significance (S = 1, M = 1/2, N = 38)

Test Name	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Pillais	.19296	6.21639	3.00	78.00	.001
Hotellings	.23909	6.21639	3.00	78.00	.001
Wilks	.80704	6.21639	3.00	78.00	.001
Roys	.19296				

Note.. F statistics are exact.

```
* * * * * * A n a l y s i s   o f   V a r i a n c e -- design   1 * * *

Tests involving 'TIME' Within-Subject Effect.

 EFFECT .. SKILL BY TIME
 Adjusted Hypothesis Sum-of-Squares and Cross-Products


 Multivariate Tests of Significance (S = 1, M = 5 , N = 33 1/2)

 Test Name          Value    Exact F Hypoth. DF   Error DF  Sig. of F

 Pillais           .21192    1.54620      12.00      69.00       .129
 Hotellings        .26890    1.54620      12.00      69.00       .129
 Wilks             .78808    1.54620      12.00      69.00       .129
 Roys              .21192
 Note.. F statistics are exact.

 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

* * * * * * A n a l y s i s   o f   V a r i a n c e -- design   1 * * *

 EFFECT .. TIME
 Adjusted Hypothesis Sum-of-Squares and Cross-Products


 Multivariate Tests of Significance (S = 1, M = 5 , N = 33 1/2)

 Test Name          Value    Exact F Hypoth. DF   Error DF  Sig. of F

 Pillais           .20904    1.51966      12.00      69.00       .138
 Hotellings        .26429    1.51966      12.00      69.00       .138
 Wilks             .79096    1.51966      12.00      69.00       .138
 Roys              .20904
 Note.. F statistics are exact.

 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

GLM - Cognitive Direction Between Subjects Follow-up Testing

Within-Subjects Factors

Measure: MEASURE_1

TIME	Dependent Variable
1	COG1
2	COG2
3	COG3
4	COG4
5	COG5

Between-Subjects Factors

		Value Label	N
skill level	1.00	National	37
	2.00	Club	45

Tests of Between-Subjects Effects

Measure: MEASURE_1

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Intercept	23466.948	1	23466.948	118.214	.000	.596
SKILL	2730.148	1	2730.148	13.753	.000	.147
Error	15880.977	80	198.512			

Skill level

Pairwise Comparisons

Measure: MEASURE_1

(I) skill level	(J) skill level	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
National	Club	5.186*	1.398	.000	2.403	7.968
Club	National	-5.186*	1.398	.000	-7.968	-2.403

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pairwise Comparisons for Between Subject Effects - Somatic Direction

Pairwise Comparisons

Measure: MEASURE_1

(I) skill level	(J) skill level	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
National	Club	4.483*	1.400	.002	1.696	7.270
Club	National	-4.483*	1.400	.002	-7.270	-1.696

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pairwise Comparisons for Within Subject Effects - Cognitive Intensity

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.110	.892	1.000	-2.684	2.465
	3	-1.585	.866	.708	-4.084	.914
	4	-.500	1.006	1.000	-3.403	2.403
	5	-3.354*	.976	.009	-6.169	-.538
2	1	.110	.892	1.000	-2.465	2.684
	3	-1.476	.814	.737	-3.826	.874
	4	-.390	.757	1.000	-2.575	1.794
	5	-3.244*	.765	.001	-5.453	-1.035
3	1	1.585	.866	.708	-.914	4.084
	2	1.476	.814	.737	-.874	3.826
	4	1.085	.801	1.000	-1.225	3.396
	5	-1.768	.747	.204	-3.925	.389
4	1	.500	1.006	1.000	-2.403	3.403
	2	.390	.757	1.000	-1.794	2.575
	3	-1.085	.801	1.000	-3.396	1.225
	5	-2.854*	.282	.000	-3.668	-2.040
5	1	3.354*	.976	.009	.538	6.169
	2	3.244*	.765	.001	1.035	5.453
	3	1.768	.747	.204	-.389	3.925
	4	2.854*	.282	.000	2.040	3.668

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pairwise Comparisons for Within Subject Effects - Somatic Intensity

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.585	.701	1.000	-1.438	2.609
	3	-1.512	.815	.673	-3.865	.841
	4	-2.707	.992	.078	-5.571	.157
	5	-6.646*	.871	.000	-9.159	-4.133
2	1	-.585	.701	1.000	-2.609	1.438
	3	-2.098	.796	.101	-4.396	.201
	4	-3.293*	.956	.009	-6.053	-.533
	5	-7.232*	.906	.000	-9.847	-4.617
3	1	1.512	.815	.673	-.841	3.865
	2	2.098	.796	.101	-.201	4.396
	4	-1.195	.799	1.000	-3.501	1.110
	5	-5.134*	.882	.000	-7.680	-2.588
4	1	2.707	.992	.078	-.157	5.571
	2	3.293*	.956	.009	.533	6.053
	3	1.195	.799	1.000	-1.110	3.501
	5	-3.939*	.623	.000	-5.737	-2.141
5	1	6.646*	.871	.000	4.133	9.159
	2	7.232*	.906	.000	4.617	9.847
	3	5.134*	.882	.000	2.588	7.680
	4	3.939*	.623	.000	2.141	5.737

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pairwise Comparisons for Within Subject Effects - Self-Confidence Intensity

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.646	.728	1.000	-1.455	2.747
	3	1.463	.783	.652	-.796	3.723
	4	.720	.836	1.000	-1.693	3.132
	5	2.720*	.782	.008	.463	4.976
2	1	-.646	.728	1.000	-2.747	1.455
	3	.817	.766	1.000	-1.394	3.028
	4	7.317E-02	.813	1.000	-2.272	2.418
	5	2.073	.871	.197	-.441	4.587
3	1	-1.463	.783	.652	-3.723	.796
	2	-.817	.766	1.000	-3.028	1.394
	4	-.744	.487	1.000	-2.149	.661
	5	1.256	.676	.667	-.694	3.206
4	1	-.720	.836	1.000	-3.132	1.693
	2	-7.317E-02	.813	1.000	-2.418	2.272
	3	.744	.487	1.000	-.661	2.149
	5	2.000*	.687	.047	1.634E-02	3.984
5	1	-2.720*	.782	.008	-4.976	-.463
	2	-2.073	.871	.197	-4.587	.441
	3	-1.256	.676	.667	-3.206	.694
	4	-2.000*	.687	.047	-3.984	-1.634E-02

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pairwise Comparisons for Within Subject Effects - Cognitive Frequency

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-9.585*	1.678	.000	-14.428	-4.742
	3	-9.915*	1.782	.000	-15.059	-4.771
	4	-14.463*	1.848	.000	-19.797	-9.130
	5	-19.512*	1.672	.000	-24.338	-14.687
2	1	9.585*	1.678	.000	4.742	14.428
	3	-.329	1.136	1.000	-3.608	2.950
	4	-4.878*	1.463	.013	-9.101	-.656
	5	-9.927*	1.501	.000	-14.259	-5.594
3	1	9.915*	1.782	.000	4.771	15.059
	2	.329	1.136	1.000	-2.950	3.608
	4	-4.549*	1.276	.006	-8.233	-.865
	5	-9.598*	1.271	.000	-13.265	-5.931
4	1	14.463*	1.848	.000	9.130	19.797
	2	4.878*	1.463	.013	.656	9.101
	3	4.549*	1.276	.006	.865	8.233
	5	-5.049*	1.302	.002	-8.807	-1.290
5	1	19.512*	1.672	.000	14.687	24.338
	2	9.927*	1.501	.000	5.594	14.259
	3	9.598*	1.271	.000	5.931	13.265
	4	5.049*	1.302	.002	1.290	8.807

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pairwise Comparisons for Within Subject Effects - Somatic Frequency

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-8.366*	1.529	.000	-12.778	-3.954
	3	-8.744*	1.837	.000	-14.046	-3.441
	4	-9.500*	1.900	.000	-14.984	-4.016
	5	-14.537*	1.859	.000	-19.901	-9.172
2	1	8.366*	1.529	.000	3.954	12.778
	3	-.378	1.625	1.000	-5.067	4.311
	4	-1.134	1.708	1.000	-6.063	3.795
	5	-6.171*	1.797	.009	-11.356	-.985
3	1	8.744*	1.837	.000	3.441	14.046
	2	.378	1.625	1.000	-4.311	5.067
	4	-.756	.860	1.000	-3.239	1.727
	5	-5.793*	1.009	.000	-8.704	-2.882
4	1	9.500*	1.900	.000	4.016	14.984
	2	1.134	1.708	1.000	-3.795	6.063
	3	.756	.860	1.000	-1.727	3.239
	5	-5.037*	1.020	.000	-7.981	-2.092
5	1	14.537*	1.859	.000	9.172	19.901
	2	6.171*	1.797	.009	.985	11.356
	3	5.793*	1.009	.000	2.882	8.704
	4	5.037*	1.020	.000	2.092	7.981

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pairwise Comparisons for Within Subject Effects - Self-Confidence Frequency

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-10.634*	1.800	.000	-15.828	-5.441
	3	-10.159*	1.879	.000	-15.581	-4.736
	4	-10.756*	1.908	.000	-16.263	-5.249
	5	-9.439*	1.877	.000	-14.856	-4.022
2	1	10.634*	1.800	.000	5.441	15.828
	3	.476	1.234	1.000	-3.085	4.036
	4	-.122	1.310	1.000	-3.903	3.659
	5	1.195	1.386	1.000	-2.804	5.195
3	1	10.159*	1.879	.000	4.736	15.581
	2	-.476	1.234	1.000	-4.036	3.085
	4	-.598	.602	1.000	-2.335	1.140
	5	.720	.989	1.000	-2.135	3.574
4	1	10.756*	1.908	.000	5.249	16.263
	2	.122	1.310	1.000	-3.659	3.903
	3	.598	.602	1.000	-1.140	2.335
	5	1.317	.830	1.000	-1.078	3.712
5	1	9.439*	1.877	.000	4.022	14.856
	2	-1.195	1.386	1.000	-5.195	2.804
	3	-.720	.989	1.000	-3.574	2.135
	4	-1.317	.830	1.000	-3.712	1.078

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

The questionnaires contained in the following booklet are concerned with certain aspects of your sporting experience, the booklet is divided into several sections. Section **1** contains a general information sheet and a questionnaire, these can be completed **at any convenient time** before the game. The following sections contain a questionnaire to be completed at the following times :

Section 2 : 7 Days before the competition/match
Section 3 : 2 Days before the competition/match
Section 4 : 1 Day before the competition/match
Section 5 : 1 Hour before the competition/match

Please Remember

*There are no right or wrong answers

*Respond as honestly as you can

*Do not spend too much time on any one question

All responses are <u>strictly confidential</u>

Please feel free to contact me on either

01142 255634/01709 868089

if you require any further information

Section 1: GENERAL INFORMATION

* Name : _____

* Age : _____

* Contact Address : _____

_____

_____

_____

* Phone Nº : Home _____ Mobile _____

* Sporting Activity : _____

* What is the **highest standard** you have competed at? (please circle **one**):

*Club *Collegiate *County *Regional

*National schools *National u21 *National emerging

*National B squad *Full national squad

*Other please indicate : _____

IMPORTANT INSTRUCTIONS

The questionnaire overleaf assesses the thoughts and feelings which you **generally** experience about competition. The effects of highly competitive sports can be powerful and very different among athletes. The inventory you are about to complete measures how you **usually** feel about competition. Please complete the inventory as honestly as you can. Sometimes athletes feel they should not admit to any nervousness, anxiety or worry they **usually** experience before competition because this is undesirable. Actually, these feelings are common, and to help us understand them we want you to share your feelings with us candidly. If you **usually** worry about competition or have butterflies or other feelings that you know are signs of anxiety, please indicate these feeling accurately on the inventory. Equally, if you **usually** feel calm and relaxed indicate those feelings as accurately as you can. Your answers will be not be shared with anyone. We will be looking only at group responses.

The inventory is divided into 2 sections. Section **1** asks you to rate the level (amount) of symptoms that you **usually** experience, and section **2** asks you to rate whether you **usually** view these symptoms as positive (facilitative) or negative (debilitative) towards performance. Please read each statement carefully and circle the appropriate number in each section before moving onto the next statement.

		SECTION 1				SECTION 2						
		Not at all	Some-what	Moderately so	Very much so	Very negative (debilitative)			Unimportant			Very positive (facilitative)
1	I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3
2	I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3
3	I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3
4	I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3
5	I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3
6	I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3
7	I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3
8	My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3
9	I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3
10	I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3
11	I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3
12	I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3
13	I am concerned about choking under	1	2	3	4	-3	-2	-1	0	+1	+2	+3
14	My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3
15	I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3
16	I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3
17	My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3
18	I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3
19	I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3
20	I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3
21	I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3
22	I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3
23	My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3
24	I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3
25	I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3
26	My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3
27	I'm confident at coming through under	1	2	3	4	-3	-2	-1	0	+1	+2	+3

Section 2.

Please complete the questionnaire overleaf

7 Days

before the competition/match.

Please bear the following instructions in mind and **THEN** complete the remainder the questionnaire at the specified time.

IMPORTANT INSTRUCTIONS

The effects of highly competitive sports can be powerful and very different among athletes. The inventory overleaf measures how you feel **right now** about the upcoming competition. Please complete the inventory as honestly as you can. Sometimes athletes feel they should not admit to any nervousness, anxiety or worry they experience before competition because this is undesirable. Actually, these feelings are common, if you have butterflies or other feelings that you know are signs of anxiety, please indicate them accurately on the inventory. Equally, if you feel calm and relaxed indicate these feelings as accurately as you can. Your answers will not be shared, and we will be looking at group responses only.

The inventory is divided into **3** sections; section **1** asks you to rate the **level** of the thoughts and/or feelings you are experiencing; section **2** asks whether you view the level of the thought/feeling as **positive (facilitative)** or **negative (debilitative)** towards upcoming performance; section **3** asks how **frequently** the thought/feeling is occurring at **this** time. Please read each statement carefully and circle the appropriate number of response in each section before moving onto the next item. Please indicate how you feel **RIGHT NOW** in relation to the upcoming competition.

	at all		so	much so	(debilitative)					(facilitative)		time						
1. I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
4. I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
16. I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
18. I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
19. I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
27. I'm confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7

Section 3.

Please complete the inventory overleaf

2 Days

before the competition/match.

	at all		so	much so	(debilitative)						(facilitative)	time						
1. I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
4. I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
16. I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
18. I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
19. I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
27. I'm confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7

Section 4.

Please complete the inventory overleaf

1 Days

before the competition/match.

	at all		so	much so	(debilitative)					(facilitative)		time						
1. I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
4. I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
16. I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
18. I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
19. I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
27. I'm confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7

Section 5.

Please complete the inventory overleaf

1 Hour

before the competition/match.

	at all		so	much so	(debilitative)						(facilitative)	time						
1. I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
2. I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
3. I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
4. I have self doubts	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
5. I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
6. I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
8. My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
9. I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
10. I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
11. I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
12. I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
13. I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
14. My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
15. I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
16. I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
17. My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
18. I'm confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
19. I'm worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
20. I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
21. I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
22. I'm concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
23. My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
25. I'm concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
26. My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7
27. I'm confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3	1	2	3	4	5	6	7

Appendix (4.2) Data Pre-screening: One-way MANOVA's for possible effects of sex and skill level on modified CSAI-2 scores.

(A4.21) Outline to the Analyse

In order to determine the possible effects that sex and skill level may impose on modified CSAI-2 scores, one-way MANOVA's were conducted pre-screening the sample. Separate analyse were performed to test for sex and skill level main effects over each dimension of anxiety and self-confidence (intensity, direction, frequency) with data pooled across all time periods. Cognitive anxiety intensity, direction and frequency, somatic anxiety intensity, direction and frequency and self-confidence intensity, direction and frequency acted as the dependent variables (DV) across all time periods within each analysis. Sex and skill level acted as the independent variable within each analysis. All calculations including assumption testing and MANOVA's were conducted using SPSS for Windows Release 10.0.0.

(A4.22) Assumption Testing and Justification

Several assumptions are associated with the use of MANOVA with the fundamental ones including; cell size, multivariate normality, linearity, homogeniety of variance-covariance matrices and multicollinearity (Coakes & Stead, 1999; Stevens, 1992; Tabachnick & Fidell, 1996). Each of the above assumptions was tested or met through the following analyse or justifications.

(A4.221) Cell Size

MANOVA ideally requires equal cell sizes within the analysis. For the current analyse cell sizes were not equal (sex analysis; male $N = 31$, female $N = 29$; skill level analysis; national/regional $N = 32$, county $N = 28$) however, a ratio of largest to smallest cell size of less than 1-1.5 should result in no problems within the analysis (Coakes & Stead, 1999; Tabachnick & Fidell, 1996). Therefore, although not equal, the gender and competitive level cell size splits were not of concern. Further, associated to the homogeneity of variance-covariance matrices assumption is the ratio DV's to cases in each cell. In short, each cell requires more cases than DV's for adequate analysis (Tabachnick & Fidell, 1996). The present analyse each contained 9 DV's with the smallest cell size equalling 28 suggesting no reason for concern.

(A4.222) Normality

According to Tabachnick & Fidell (1996) multivariate normality can be assumed when sample sizes create 20 degrees of freedom for error in the univariate case as long as sample sizes are approximately equal. The present analyse created 47 degrees of freedom for error in the univariate case. Additionally, even with unequal *N*, sample sizes of about 20 in the smallest size cell should ensure robustness and produce normality.

Associated to the assumption of normality within MANOVA is the identification of outlying cases within each DV of the analysis. As such, the Mahalanobis distance test was used to identify multivariate outliers with the critical value of chi-square for 9 DV's equalling 27.91 (α 0.001). With this in mind, only one case was identified as an outlier in the direction analysis (CSAI-2), which in a sample size of sixty is not wholly unexpected. As such, the case was retained within the analysis (Coakes & Stead, 1999; Tabachnick & Fidell, 1996). Therefore, the above justifications and testing suggest the sample data satisfied the criteria for multivariate normality.

(A4.223) Linearity

MANOVA assumes linear relationships between all pairs of DV's (Coakes & Stead, 1999; Tabachnick & Fidell, 1996). As such, the recommended process of within cell scatter plots between each DV was visually assessed. Several DV's showed associations, however this was not wholly unexpected due to the theoretical relationships between the anxiety and confidence components. As such, it was deemed safe to proceed with the MANOVA analysis (Cookes & Stead, 1999, Tabachnick & Fidell, 1996).

(A4.224) Homogeneity of Variance-Covariance Matrices

MANOVA assumes that the variance-covariance matrices within each cell of the design are equal (homogeneous) across the sampled population (Coakes & Stead, 1999; Stevens, 1992; Tabachnick & Fidell, 1996). To test the assumption at the multivarite level Box's *M* test can be utilised. Tabachnick and Fidell (1996) offer the following advice regarding the application of the test. Equal sample sizes offer robustness against the assumption so one can disregard the result of the notoriously sensitive Box's *M* test. However, if sample sizes are unequal Box's *M* test must be considered with the alpha level set at $p<0.001$. Therefore, for the current analysis sample sizes within each cell were not equal and Box's *M* test must be applied. Inspection of the test results realised no significance levels greater than 0.001 suggesting homogeneity of variance-covariance at

the multivariate level (view output for an example of Box's *M* testing). However, Pillia's Trace was chosen as the most appropriate test statistic due to its previous use within the thesis and its robustness over possible assumption violations (Field, 2000; Tabachnick & Fidell, 1996).

Additionally, Coakes and Stead (1999) advocate the testing of homogeneity of variance at the univariate level on each DV. Tabachnick and Fidell (1996) and Field (2000) have recently criticised the use of formal tests of homogeneity of variance suggesting they are too strict and too highly influenced by nonnormality. In response, they advocate the use of the F_{max} ratio calculated between the largest and smallest cell variance within each group. In short, when cell sizes are approximately equal an F_{max} ratio of up to 10 is considered acceptable. Therefore, F_{max} ratio's were calculated across all DV's with the variance proportions (highest to lowest) compared. All ratio's attained the suggested standard (view output for an example of *Fmax* calculation).

(A4.225) Multicollinearity and Singularity

Multicollinearity and singularity can cause problems when correlations amongst the DV's are high (i.e., 0.9 or greater). In short, when variables are multicollinear or singular they contain redundant information and can compromise the test if included in the same analysis (Tabachnick & Fidell, 1996). Therefore, the collinearity diagnostics programme incorporated into SPSS was utilised to test the assumption. Criteria for multicolinearity are a conditioning index >30 and more than two variance proportions >.50 for a given root number (Tabachnick & Fidell, 1996). Singularity screening occurs through running the programme and establishing whether the computer processes the analysis. If singularity is present, the programme by default 'aborts' the run of the test (Tabachnick & Fidell, 1996). SPSS successfully ran each analysis indicating no concern of singularity, and the conditioning indexes and root variance proportions for each DV reached the outlined criteria-suggesting acceptance of the assumption requirements (view output for an example of multicollinearity testing).

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(A4.23) Follow-up and Post-hoc Testing

Due to non significant results being observed in the pre-screening MANOVA, no follow-up testing procedures were required.

Variance and Fmax Ratios Intensity - Grouping Variable = Sex

	Gender		Statistic	Fmax ratio
CA-1	male	Mean	17.0645	1.2465
		Variance	25.062	
	female	Mean	18.2069	
		Variance	31.241	
CA-2	male	Mean	17.9032	1.2355
		Variance	29.024	
	female	Mean	19.8276	
		Variance	35.862	
CA-3	male	Mean	19.9032	1.1551
		Variance	30.890	
	female	Mean	20.5862	
		Variance	35.680	
CA-4	male	Mean	21.3548	1.0542
		Variance	37.703	
	female	Mean	22.0345	
		Variance	39.749	
SA-1	male	Mean	11.0000	1.7569
		Variance	5.667	
	female	Mean	11.4828	
		Variance	9.973	
SA-2	male	Mean	12.6774	1.1372
		Variance	11.826	
	female	Mean	13.5517	
		Variance	10.399	
SA-3	male	Mean	13.3548	1.0489
		Variance	15.703	
	female	Mean	14.4483	
		Variance	14.970	
SA-4	male	Mean	16.8065	1.1237
		Variance	31.295	
	female	Mean	18.2759	
		Variance	27.850	
SC-1	male	Mean	29.3548	1.7879
		Variance	18.370	
	female	Mean	24.1034	
		Variance	43.096	
SC-2	male	Mean	27.5161	2.3590
		Variance	20.591	
	female	Mean	23.3103	
		Variance	48.579	
SC-3	male	Mean	27.8710	1.7262
		Variance	22.783	
	female	Mean	24.4483	
		Variance	39.328	
SC-4	male	Mean	26.2581	1.0256
		Variance	34.998	
	female	Mean	22.8621	
		Variance	34.123	

Variance and Fmax Ratios Intensity - Grouping Variable = Skill

	Competitive level		Statistic	Fmax ratio
CA-1	National/regional	Mean	18.5625	1.2301
		Variance	29.931	
	county	Mean	16.5357	
		Variance	24.332	
CA-2	National/regional	Mean	19.6563	1.0488
		Variance	33.201	
	county	Mean	17.8929	
		Variance	31.655	
CA-3	National/regional	Mean	20.7813	1.1988
		Variance	30.176	
	county	Mean	19.6071	
		Variance	36.173	
CA-4	National/regional	Mean	21.3438	1.1694
		Variance	35.846	
	county	Mean	22.0714	
		Variance	41.921	
SA-1	National/regional	Mean	11.3125	1.6964
		Variance	9.641	
	county	Mean	11.1429	
		Variance	5.683	
SA-2	National/regional	Mean	13.2188	1.2389
		Variance	12.434	
	county	Mean	12.9643	
		Variance	10.036	
SA-3	National/regional	Mean	13.8750	1.7263
		Variance	19.532	
	county	Mean	13.8929	
		Variance	11.210	
SA-4	National/regional	Mean	16.9375	1.4728
		Variance	35.028	
	county	Mean	18.1786	
		Variance	23.782	
SC-1	National/regional	Mean	26.5625	1.1181
		Variance	39.286	
	county	Mean	27.1071	
		Variance	35.136	
SC-2	National/regional	Mean	24.9688	1.2040
		Variance	41.644	
	county	Mean	26.0714	
		Variance	34.587	
SC-3	National/regional	Mean	25.8438	1.7181
		Variance	41.684	
	county	Mean	26.6429	
		Variance	24.386	
SC-4	National/regional	Mean	24.8125	1.2903
		Variance	41.899	
	county	Mean	24.3929	
		Variance	32.470	

Multicollinearity Statistics

Intensity

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index
1	1	12.353	1.000
	2	.362	5.840
	3	.115	10.347
	4	5.512E-02	14.971
	5	2.843E-02	20.846
	6	2.200E-02	23.695
	7	1.705E-02	26.921
	8	1.257E-02	31.352
	9	9.929E-03	35.273
	10	8.359E-03	38.443
	11	6.335E-03	44.159
	12	5.754E-03	46.335
	13	3.521E-03	59.236

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions									
		(Constant)	CA-1	CA-2	CA-3	CA-4	SA-1	SA-2	SA-3	SA-4	SC-1
1	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
	3	.00	.02	.02	.01	.01	.01	.01	.01	.04	.00
	4	.00	.06	.00	.00	.03	.23	.00	.00	.05	.03
	5	.00	.16	.00	.00	.10	.25	.00	.03	.00	.00
	6	.01	.18	.02	.08	.03	.00	.00	.00	.00	.17
	7	.02	.22	.09	.01	.05	.00	.17	.01	.14	.05
	8	.01	.02	.22	.01	.23	.06	.07	.09	.44	.01
	9	.02	.02	.17	.21	.04	.07	.06	.00	.00	.32
	10	.37	.00	.00	.13	.20	.00	.10	.01	.04	.01
	11	.47	.06	.00	.17	.27	.15	.03	.03	.00	.24
	12	.00	.10	.47	.21	.00	.06	.20	.43	.25	.01
	13	.11	.15	.00	.18	.03	.15	.35	.38	.03	.16

Collinearity Diagnostics[a]

Model	Dimension	Variance Proportions		
		SC-2	SC-3	SC-4
1	1	.00	.00	.00
	2	.00	.00	.01
	3	.00	.00	.00
	4	.00	.00	.00
	5	.01	.00	.13
	6	.00	.00	.23
	7	.05	.00	.01
	8	.00	.00	.05
	9	.00	.25	.00
	10	.21	.00	.14
	11	.07	.03	.40
	12	.08	.14	.01
	13	.58	.56	.02

a. Dependent Variable: Subject number

One-way Pre-screeningMANOVA - Sex (Direction)

Box's Test of Equality of Covariance Matrices[a]

Box's M	122.448
F	1.221
df1	78
df2	10522
Sig.	.090

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+GENDER

Direction

Between-Subjects Factors

		Value Label	N
Gender	1.00	male	31
	2.00	female	29

Descriptive Statistics

	Gender	Mean	Std. Deviation	N
CA-1	male	-.4516	9.7770	31
	female	-1.8276	8.9085	29
	Total	-1.1167	9.3139	60
CA-2	male	-1.0968	10.1040	31
	female	-1.4483	9.4135	29
	Total	-1.2667	9.6951	60
CA-3	male	-2.2258	11.2715	31
	female	.1379	9.9668	29
	Total	-1.0833	10.6378	60
CA-4	male	-3.1613	10.9912	31
	female	-5.4138	9.8761	29
	Total	-4.2500	10.4405	60
SA-1	male	4.8387	9.4661	31
	female	1.4483	8.2531	29
	Total	3.2000	8.9893	60
SA-2	male	4.2581	8.4260	31
	female	4.0000	10.0178	29
	Total	4.1333	9.1512	60
SA-3	male	2.4516	9.0658	31
	female	4.7241	10.9997	29
	Total	3.5500	10.0261	60
SA-4	male	1.1613	9.4520	31
	female	.2069	8.8373	29
	Total	.7000	9.0952	60
SC-1	male	13.5484	7.5403	31
	female	10.1034	11.1942	29
	Total	11.8833	9.5600	60
SC-2	male	14.0000	6.9378	31
	female	11.3793	9.9262	29
	Total	12.7333	8.5427	60
SC-3	male	15.0968	5.3501	31
	female	11.0000	8.2158	29
	Total	13.1167	7.1310	60
SC-4	male	13.6129	6.3229	31
	female	8.0345	10.4761	29
	Total	10.9167	8.9619	60

Multivariate Tests[b]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.846	21.486[a]	12.000	47.000	.000
	Wilks' Lambda	.154	21.486[a]	12.000	47.000	.000
	Hotelling's Trace	5.486	21.486[a]	12.000	47.000	.000
	Roy's Largest Root	5.486	21.486[a]	12.000	47.000	.000
GENDER	Pillai's Trace	.276	1.489[a]	12.000	47.000	.162
	Wilks' Lambda	.724	1.489[a]	12.000	47.000	.162
	Hotelling's Trace	.380	1.489[a]	12.000	47.000	.162
	Roy's Largest Root	.380	1.489[a]	12.000	47.000	.162

a. Exact statistic

b. Design: Intercept+GENDER

Appendix (4.3) Repeated Measures MANOVA's for possible time to competition effects across interpretational groups

Outline to the Analyse

In order to determine the possible effects that interpretation (facilitative, debilitative or mixed) may have imposed on anxiety and confidence, and to examine possible time-to-competition changes in symptoms, a series of 3 (interpretational group) x 4 (time-to-competition). Separate analyse were performed across the individual anxiety and confidence dimensions of intensity, direction and frequency of intrusions. Cognitive anxiety, somatic anxiety and self-confidence acted as the dependent variables across all time periods, with trait level of interpretation acting as the independent variable within each analysis. All calculations including assumption testing and MANOVA/post-hoc analyse were conducted using SPSS for Windows Release 10.0.0.

(A4.31) Assumption Testing and Justification

The assumptions associated with the use of repeated measure MANOVA are similar those outlined in Appendix 4.2; hence, repetition of these would be unwieldy and the reader is referred to these sections for a complete review. However, the structure of the repeated measures analyse differed slightly from the one-way approach used to examine gender and skill level differences. Therefore, an insight into where assumption tests and justifications changed is required to fully track the reader through the data analysis procedures.

(A4.311) Cell Size

Cell size assumption was reached through the inclusion of equal cell sizes within each analysis (20 participants in each experimental group; Cooke & Stead, 1999; Tabachnick & Fidell, 1996). Further, related to homogeneity of variance-covariance matrices, the ratio of cases to DV's was adequate for the use of MANOVA.

(A4.312) Normality

Multivariate normality was attained through the creation of more than 20 degrees of freedom for error in the univariate case and the use of equal sample sizes. The present analyse created a minimum of 57 degrees of freedom for error for between-subject effects

and a minimum of 104[1] degrees of freedom for error for within-subject effects in the univariate case. Further, the use of 20 cases in the smallest cell added to assurances that normality should be present in each data set (Tabachnick & Fidell, 1996). The testing used in the analyse in appendix (A4.222) can be applied to the current analysis for the identification of outlying cases within each DV.

(A4.313) Linearity

The testing used in the analyse in appendix (A4.223) covers the assumption of linearity within the current analysis.

(A4.314) Homogeneity of Variance-covariance Matrices

Box's *M* test was calculated testing the assumption at the multivariate level using the significance level of $p<.001$. The test statistic was violated in a few cases, therefore Pillia's Trace was chosen as the appropriate test statistic due to its robustness over assumption violations (Tabchnick & Fidell, 1996). Further, univariate homogeneity of variance assumptions were tested within each DV (Coakes & Stead, 1999). Therefore, F_{max} ratios were calculated between the largest and smallest cell variance within each group under the assumption that when cell sizes are approximately equal an F_{max} ratio of up to 10 is considered acceptable. All ratio's attained the suggested standard (view output for an example of *Fmax* calculation).

(A4.315) Multicollinearity and Singularity

The testing used in the analyse procedures outlined in appendix (A4.225) applies to the current analysis.

(A4.32) Follow-up and Post-hoc Pairwise Comparisons

The identification of significant main effects was followed up with two-way mixed ANOVA's testing for between-subject effects of experimental group differences and within-subject effects on the repeated measures of time-to-competition. Assumptions of univariate homogeneity of variance were covered in the previous MANOVA analysis.

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[1] The degrees of freedom for error listed for the within-subject effects are following the application of the Green-house Geisser correction factor for sphericity.

Related to the repeated measures analysis, Mauchley's test was conducted to test for violations of sphericity. The advent of a significant test statistic was addressed through the use of the Greenhouse Geisser Epsilon adjustment to correct the degrees of freedom prior to assessing the significance of *F* (Field, 2000; Roberts & Russo, 1999). Additionally, the use of MANOVA and the realisation of significant effects are suggested to protest against the use of multiple ANOVA's and the possibility of committing a type I error. As such, Bonferroni corrections were not applied to the ANOVA *F*-ratio's (Tabachnick & Fidell, 1998). The identification of significant mean differences for between effects and within repeated measures effects were followed with post-hoc pairwise comparisons. In all cases the Bonferroni method was preferred. This primarily related to the number of comparisons made in the post-hoc analysis (Roberts & Russo, 1999) and the violation of the sphericity assumption in the within subjects repeated measures analysis (Field, 2000).

(A4.33) Output Summary

Due to the volume of output produced from SPSS during the procedures of assumption testing, MANOVA, follow-up ANOVA and paiwise comparison testing, only one example of a full analysis (both between and within) will be presented here. However, the pairwise comparisons showing significance were not tabulated in the results section of Chapter four (see Section 4.55); therefore, all parwise comparison data for follow-up ANOVA indicating significant effects will be presented here.

Variance and Fmax Ratios Direction - Grouping Variable = Interpretation

	Interpretation		Statistic	Fmax ratio
CA-1	facilitative	Mean	6.8500	2.1683
		Variance	47.713	
	debilitative	Mean	-7.7000	
		Variance	73.379	
	mixed	Mean	-2.5000	
		Variance	33.842	
CA-2	facilitative	Mean	7.1500	2.2354
		Variance	42.239	
	debilitative	Mean	-7.2500	
		Variance	90.618	
	mixed	Mean	-3.7000	
		Variance	40.537	
CA-3	facilitative	Mean	8.5500	3.9436
		Variance	26.892	
	debilitative	Mean	-7.5000	
		Variance	106.053	
	mixed	Mean	-4.3000	
		Variance	66.537	
CA-4	facilitative	Mean	5.9500	2.2862
		Variance	32.787	
	debilitative	Mean	-10.3000	
		Variance	74.958	
	mixed	Mean	-8.4000	
		Variance	64.568	
SA-1	facilitative	Mean	8.5500	2.5949
		Variance	89.945	
	debilitative	Mean	-3.1000	
		Variance	53.463	
	mixed	Mean	4.1500	
		Variance	34.661	
SA-2	facilitative	Mean	9.9500	2.0588
		Variance	58.682	
	debilitative	Mean	-2.0000	
		Variance	84.842	
	mixed	Mean	4.4500	
		Variance	41.208	
SA-3	facilitative	Mean	9.7000	2.0292
		Variance	50.011	
	debilitative	Mean	-3.3000	
		Variance	101.484	
	mixed	Mean	4.2500	
		Variance	70.934	
SA-4	facilitative	Mean	6.4500	1.4487
		Variance	51.734	
	debilitative	Mean	-6.6000	
		Variance	45.621	
	mixed	Mean	2.2500	
		Variance	66.092	
SC-1	facilitative	Mean	13.7000	4.1815
		Variance	48.642	
	debilitative	Mean	9.3500	
		Variance	181.082	
	mixed	Mean	12.6000	
		Variance	43.305	

	Interpretation		Statistic	Fmax ratio
SC-2	facilitative	Mean	14.7500	4.9771
		Variance	29.882	
	debilitative	Mean	9.9000	
		Variance	148.726	
	mixed	Mean	13.5500	
		Variance	34.576	
SC-3	facilitative	Mean	14.6500	3.9322.
		Variance	24.239	
	debilitative	Mean	10.9500	
		Variance	95.313	
	mixed	Mean	13.7500	
		Variance	30.513	
SC-4	facilitative	Mean	12.7000	5.5233
		Variance	43.800	
	debilitative	Mean	7.8500	
		Variance	161.397	
	mixed	Mean	12.2000	
		Variance	29.221	

MANOVA - Frequency

* * * * * * Analysis of Variance * * * * * *

60 cases accepted.
0 cases rejected because of out-of-range factor values.
0 cases rejected because of missing data.
1 design will be processed.

- -

CELL NUMBER
1 2 3

Variable
DIR 1 2 3

Cell Means and Standard Deviations
Variable .. COG1

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	23.050	11.949	20
DIR	debilita	34.050	13.426	20
DIR	mixed	31.250	10.442	20
For entire sample		29.450	12.700	60

- -

Variable .. COG2

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	28.650	10.649	20
DIR	debilita	38.800	12.068	20
DIR	mixed	34.950	7.944	20
For entire sample		34.133	11.025	60

- -

Variable .. COG3

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	29.150	10.728	20
DIR	debilita	38.500	13.000	20
DIR	mixed	36.550	10.415	20
For entire sample		34.733	11.955	60

- -

Variable .. COG4

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	35.100	14.018	20
DIR	debilita	42.950	12.344	20
DIR	mixed	41.150	12.963	20
For entire sample		39.733	13.339	60

- -

Variable .. SOM1

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	20.950	11.901	20
DIR	debilita	25.200	14.663	20
DIR	mixed	22.100	9.947	20
For entire sample		22.750	12.247	60

Variable .. SOM2

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	24.100	12.104	20
DIR	debilita	28.450	13.740	20
DIR	mixed	25.950	10.252	20
For entire sample		26.167	12.044	60

Variable .. SOM3

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	27.950	13.069	20
DIR	debilita	31.850	14.061	20
DIR	mixed	25.900	11.243	20
For entire sample		28.567	12.867	60

Variable .. SOM4

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	34.350	14.372	20
DIR	debilita	37.650	15.003	20
DIR	mixed	33.000	11.580	20
For entire sample		35.000	13.641	60

Variable .. SC1

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	41.000	11.908	20
DIR	debilita	38.850	10.111	20
DIR	mixed	40.450	10.324	20
For entire sample		40.100	10.665	60

Variable .. SC2

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	44.050	11.246	20
DIR	debilita	39.250	10.361	20
DIR	mixed	41.250	6.624	20
For entire sample		41.517	9.663	60

Variable .. SC3

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	45.050	9.589	20
DIR	debilita	36.550	11.468	20
DIR	mixed	43.350	7.849	20
For entire sample		41.650	10.272	60

Variable .. SC4

FACTOR	CODE	Mean	Std. Dev.	N
DIR	facilita	45.500	10.159	20
DIR	debilita	33.450	11.376	20
DIR	mixed	42.250	7.426	20
For entire sample		40.400	10.910	60

- -

Multivariate test for Homogeneity of Dispersion matrices

Boxs M = 317.48852
F WITH (156,8657) DF = 1.40709, P = .001 (Approx.)
Chi-Square with 156 DF = 225.22690, P = .000 (Approx.)

- -

* * * * * * A n a l y s i s o f V a r i a n c e -- design 1 * *

Multivariate Tests of Significance (S = 2, M = 0, N = 26 1/2)

Test Name	Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
Pillais	.28885	3.15096	6.00	112.00	.007
Hotellings	.36020	3.24183	6.00	108.00	.006
Wilks	.72500	3.19803	6.00	110.00	.006
Roys	.22815				

Note.. F statistic for WILKS' Lambda is exact.

- -

* * * * * * A n a l y s i s o f V a r i a n c e -- design 1 * *

Tests involving 'TIME' Within-Subject Effect.

EFFECT .. DIR BY TIME
Adjusted Hypothesis Sum-of-Squares and Cross-Products

Multivariate Tests of Significance (S = 2, M = 3 , N = 23 1/2)

Test Name	Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
Pillais	.40191	1.39720	18.00	100.00	.150
Hotellings	.55740	1.48640	18.00	96.00	.112
Wilks	.62489	1.44291	18.00	98.00	.129
Roys	.31750				

Note.. F statistic for WILKS' Lambda is exact.

- -

* * * * * * A n a l y s i s o f V a r i a n c e -- design 1 * *

EFFECT .. TIME

Multivariate Tests of Significance (S = 1, M = 3 1/2, N = 23 1/2)

Test Name	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Pillais	.59112	7.87091	9.00	49.00	.000
Hotellings	1.44568	7.87091	9.00	49.00	.000
Wilks	.40888	7.87091	9.00	49.00	.000
Roys	.59112				

Note.. F statistics are exact.

- -

GLM - Cognitive Frequency Post Hoc Testing - General Linear Model

Within-Subjects Factors

Measure: MEASURE_1

TIME	Dependent Variable
1	COG1F
2	COG2F
3	COG3F
4	COG4F

Between-Subjects Factors

		Value Label	N
Interpretation	1.00	facilitative	20
	2.00	debilitative	20
	3.00	mixed	20

Mauchly's Test of Sphericity[b]

Measure: MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
TIME	.442	45.534	5	.000	.656	.703	.333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b.
Design: Intercept+DIR
Within Subjects Design: TIME

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
TIME	Sphericity Assumed	3184.713	3	1061.571	25.278	.000	.307
	Greenhouse-Geisser	3184.713	1.967	1619.103	25.278	.000	.307
	Huynh-Feldt	3184.713	2.108	1510.670	25.278	.000	.307
	Lower-bound	3184.713	1.000	3184.713	25.278	.000	.307
TIME * DIR	Sphericity Assumed	73.625	6	12.271	.292	.940	.010
	Greenhouse-Geisser	73.625	3.934	18.715	.292	.880	.010
	Huynh-Feldt	73.625	4.216	17.462	.292	.891	.010
	Lower-bound	73.625	2.000	36.813	.292	.748	.010
Error(TIME)	Sphericity Assumed	7181.413	171	41.997			
	Greenhouse-Geisser	7181.413	112.1	64.053			
	Huynh-Feldt	7181.413	120.2	59.763			
	Lower-bound	7181.413	57.000	125.990			

Tests of Between-Subjects Effects

Measure: MEASURE_1

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	285867.037	1	285867.037	667.019	.000	.921
DIR	3933.475	2	1966.737	4.589	.014	.139
Error	24428.738	57	428.574			

Estimated Marginal Means

1. Interpretation

Estimates

Measure: MEASURE_1

Interpretation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
facilitative	28.988	2.315	24.353	33.622
debilitative	38.575	2.315	33.940	43.210
mixed	35.975	2.315	31.340	40.610

Pairwise Comparisons

Measure: MEASURE_1

(I) Interpretation	(J) Interpretation	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
facilitative	debilitative	-9.588*	3.273	.015	-17.662	-1.513
	mixed	-6.987	3.273	.111	-15.062	1.087
debilitative	facilitative	9.588*	3.273	.015	1.513	17.662
	mixed	2.600	3.273	1.000	-5.474	10.674
mixed	facilitative	6.987	3.273	.111	-1.087	15.062
	debilitative	-2.600	3.273	1.000	-10.674	5.474

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

2. TIME

Estimates

Measure: MEASURE_1

TIME	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	29.450	1.549	26.347	32.553
2	34.133	1.338	31.454	36.812
3	34.733	1.477	31.776	37.691
4	39.733	1.695	36.340	43.127

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-4.683*	1.115	.001	-7.732	-1.634
	3	-5.283*	1.292	.001	-8.816	-1.750
	4	-10.283*	1.633	.000	-14.748	-5.819
2	1	4.683*	1.115	.001	1.634	7.732
	3	-.600	.780	1.000	-2.733	1.533
	4	-5.600*	1.179	.000	-8.823	-2.377
3	1	5.283*	1.292	.001	1.750	8.816
	2	.600	.780	1.000	-1.533	2.733
	4	-5.000*	.905	.000	-7.473	-2.527
4	1	10.283*	1.633	.000	5.819	14.748
	2	5.600*	1.179	.000	2.377	8.823
	3	5.000*	.905	.000	2.527	7.473

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Between Subject Effects - Self-Confidence Intensity

Pairwise Comparisons

Measure: MEASURE_1

(I) Interpretation	(J) Interpretation	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
facilitative	debilitative	5.663*	1.553	.002	1.832	9.493
	mixed	3.275	1.553	.118	-.556	7.106
debilitative	facilitative	-5.663*	1.553	.002	-9.493	-1.832
	mixed	-2.387	1.553	.389	-6.218	1.443
mixed	facilitative	-3.275	1.553	.118	-7.106	.556
	debilitative	2.387	1.553	.389	-1.443	6.218

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Between Subject Effects - Cognitive Anxiety Direction

Pairwise Comparisons

Measure: MEASURE_1

(I) Interpretation	(J) Interpretation	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
facilitative	debilitative	15.312*	1.995	.000	10.391	20.234
	mixed	11.850*	1.995	.000	6.929	16.771
debilitative	facilitative	-15.312*	1.995	.000	-20.234	-10.391
	mixed	-3.463	1.995	.264	-8.384	1.459
mixed	facilitative	-11.850*	1.995	.000	-16.771	-6.929
	debilitative	3.463	1.995	.264	-1.459	8.384

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Between Subject Effects - Somatic Anxiety Direction

Pairwise Comparisons

Measure: MEASURE_1

(I) Interpretation	(J) Interpretation	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
facilitative	debilitative	12.412*	2.039	.000	7.383	17.442
	mixed	4.888	2.039	.059	-.142	9.917
debilitative	facilitative	-12.412*	2.039	.000	-17.442	-7.383
	mixed	-7.525*	2.039	.002	-12.555	-2.495
mixed	facilitative	-4.888	2.039	.059	-9.917	.142
	debilitative	7.525*	2.039	.002	2.495	12.555

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Between Subject Effects - Self-confidence Frequency

Pairwise Comparisons

Measure: MEASURE_1

(I) Interpretation	(J) Interpretation	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
facilitative	debilitative	6.875*	2.626	.034	.398	13.352
	mixed	2.075	2.626	1.000	-4.402	8.552
debilitative	facilitative	-6.875*	2.626	.034	-13.352	-.398
	mixed	-4.800	2.626	.218	-11.277	1.677
mixed	facilitative	-2.075	2.626	1.000	-8.552	4.402
	debilitative	4.800	2.626	.218	-1.677	11.277

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Within Subject Effects - Cognitive Anxiety Intensity

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-1.217	.497	.104	-2.574	.141
	3	-2.617*	.524	.000	-4.048	-1.185
	4	-4.067*	.645	.000	-5.829	-2.304
2	1	1.217	.497	.104	-.141	2.574
	3	-1.400*	.374	.003	-2.423	-.377
	4	-2.850*	.462	.000	-4.112	-1.588
3	1	2.617*	.524	.000	1.185	4.048
	2	1.400*	.374	.003	.377	2.423
	4	-1.450*	.441	.010	-2.655	-.245
4	1	4.067*	.645	.000	2.304	5.829
	2	2.850*	.462	.000	1.588	4.112
	3	1.450*	.441	.010	.245	2.655

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Within Subject Effects - Somatic Anxiety Intensity

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-1.867*	.381	.000	-2.908	-.826
	3	-2.650*	.469	.000	-3.933	-1.367
	4	-6.283*	.664	.000	-8.097	-4.469
2	1	1.867*	.381	.000	.826	2.908
	3	-.783*	.258	.022	-1.489	-7.748E-02
	4	-4.417*	.473	.000	-5.710	-3.123
3	1	2.650*	.469	.000	1.367	3.933
	2	.783*	.258	.022	7.748E-02	1.489
	4	-3.633*	.388	.000	-4.695	-2.572
4	1	6.283*	.664	.000	4.469	8.097
	2	4.417*	.473	.000	3.123	5.710
	3	3.633*	.388	.000	2.572	4.695

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Within Subject Effects - Self-Confidence Intensity

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	1.333	.564	.129	-.207	2.874
	3	.600	.602	1.000	-1.045	2.245
	4	2.200*	.739	.026	.179	4.221
2	1	-1.333	.564	.129	-2.874	.207
	3	-.733	.391	.396	-1.803	.336
	4	.867	.576	.828	-.708	2.441
3	1	-.600	.602	1.000	-2.245	1.045
	2	.733	.391	.396	-.336	1.803
	4	1.600*	.538	.026	.129	3.071
4	1	-2.200*	.739	.026	-4.221	-.179
	2	-.867	.576	.828	-2.441	.708
	3	-1.600*	.538	.026	-3.071	-.129

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Within Subject Effects - Cognitive Anxiety Direction

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.150	.712	1.000	-1.797	2.097
	3	-3.333E-02	1.046	1.000	-2.891	2.825
	4	3.133*	1.006	.017	.383	5.884
2	1	-.150	.712	1.000	-2.097	1.797
	3	-.183	.785	1.000	-2.329	1.962
	4	2.983*	.906	.010	.505	5.461
3	1	3.333E-02	1.046	1.000	-2.825	2.891
	2	.183	.785	1.000	-1.962	2.329
	4	3.167*	.945	.009	.585	5.749
4	1	-3.133*	1.006	.017	-5.884	-.383
	2	-2.983*	.906	.010	-5.461	-.505
	3	-3.167*	.945	.009	-5.749	-.585

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Within Subject Effects - Somatic Anxiety Direction

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.933	1.043	1.000	-3.784	1.917
	3	-.350	1.112	1.000	-3.390	2.690
	4	2.500	1.077	.143	-.443	5.443
2	1	.933	1.043	1.000	-1.917	3.784
	3	.583	.726	1.000	-1.400	2.567
	4	3.433*	.929	.003	.894	5.972
3	1	.350	1.112	1.000	-2.690	3.390
	2	-.583	.726	1.000	-2.567	1.400
	4	2.850*	.823	.006	.600	5.100
4	1	-2.500	1.077	.143	-5.443	.443
	2	-3.433*	.929	.003	-5.972	-.894
	3	-2.850*	.823	.006	-5.100	-.600

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Summary of Pariwise Comparisons for Within Subject Effects - Somatic Anxiety Frequency

Pairwise Comparisons

Measure: MEASURE_1

(I) TIME	(J) TIME	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-3.417*	.878	.002	-5.816	-1.017
	3	-5.817*	1.168	.000	-9.010	-2.623
	4	-12.250*	1.592	.000	-16.602	-7.898
2	1	3.417*	.878	.002	1.017	5.816
	3	-2.400*	.828	.032	-4.662	-.138
	4	-8.833*	1.341	.000	-12.498	-5.169
3	1	5.817*	1.168	.000	2.623	9.010
	2	2.400*	.828	.032	.138	4.662
	4	-6.433*	1.056	.000	-9.321	-3.546
4	1	12.250*	1.592	.000	7.898	16.602
	2	8.833*	1.341	.000	5.169	12.498
	3	6.433*	1.056	.000	3.546	9.321

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

The forms contained in the following booklet are concerned with aspects of **your personal approach** to competition preparation. The booklet is divided into several sections. Section **1** contains a general information sheet which can be completed at any time. Section **2** contains guidelines about how to complete the forms and how to interpret the signals you will receive on the pager device. The sections after that contain the forms to be completed once a day at random times on the receipt of a pager signal.

Please Remember

*There are no right or wrong answers

*Respond as honestly as you can

*It is about how you feel and think about competition that matters

All responses are <u>strictly confidential</u>

Please feel free to contact me on either

01142 255634/01709 868089

if you require any further information

Section 1: GENERAL INFORMATION

* Name : _____

* Age : _____

* Contact Address : _____

_____

_____

_____

* Phone N^{o} : Home _____ Mobile _____

* Sporting Activity : _____

* What is the **highest standard** you have competed at? (please circle **one**):

*Club *Collegiate *County *Regional

*National schools *National u21 *National emerging

*National B squad *Full national squad

*Other please indicate :_____

Section 2 : Important Instructions

The enclosed forms are designed so that **you** the player have the opportunity to note what **you** think and feel in the time leading up to an important match.

You are asked to complete a set of forms **once** a day in the week leading up to the match.

In order to notify you when a form completion is needed you are provided with a pager set to receive a daily random signal between the hours of 9.00 a.m. and 8.00 p.m.

The signals will be coded notifying the time the signal relates to. The codes will be signalled as follows :-

6 days form 1 = **Six** days before the match for the form of that day

5 days form 1 = **Five** days before the match for the form of that day

4 days form 1= **Four** days before the match for the form of that day

3 days form 1 = **Three** days before the match for the form of that day

2 days form 1 = **Two** days before the match for the form of that day

1 day form 1 = **One** day before the match for the form of that day

Please note that on the day of match you will not receive a pager signal, you are asked to complete your one set of forms for that day **1 hour** before the match.

Please ignore any other signals that are sent to the pager and only respond to those relating to the codes above

Receiving Messages

Signal

- The pager is set to silent vibrate which is the alert the pager will give when a message to complete the form is sent to you.
- On receipt of a message the pager will vibrate over two intermittent times.

Reading a sent message

- The message appears temporarily on the screen once it has been received by the pager. It is then replaced in the top left corner of the display with the  symbol
- To read the message press the **yes** button which displays the coded message for the time and number of 'thought's and feelings' form you need to complete
- If you have more than one message waiting to be read use the **right** scroll button to see and read the other messages

Establishing the time and date of the sent message

- From the first screen of the message you are reading press the **yes** button.
- Select the  symbol and the message type (always = personal) will be displayed, use the scroll **right** button to read the time and date the message was sent.

Normal settings

- The pager can be return to the normal blank screen by pressing the **no** button twice
- The pager will also return to its normal screen once a period of inactivity has occurred

Battery Warning

- In the unlikely event that the battery levels are low, the  symbol appears on the pager. Please contact me ASAP so a replacement battery can be issued to you.

Common Thoughts and Feelings

Listed below are several common thoughts and feelings that players have used to describe the thought and feelings they experience in the time leading up to a match.

- Excited
- Nervous
- Confident
- Relaxed
- Anxious
- Focused
- Tired
- Enjoyment
- Tense
- Angry
- Worried
- Eager
- Motivated
- Apprehensive

This list is not exhaustive and you are free to record anything that is not on the list.

In fact you encouraged to do so PLEASE REMEMBER this is about how YOU feel and about what YOU think in the time leading up to a match

Section 3.

Please complete the form overleaf

6 Days

before the competition/match on receipt of signal

6 Days form 1

Please Record :

The time you received the signal _____

The time you completed the form _____

What activity were you doing when you received the signal?

_____

_____

_____

Please read the instructions carefully and respond to what you have thought or felt about the competition / match in the last 24 hours

Thoughts and Feelings Towards Competition Form

1) Please list the thoughts and feelings you are experiencing about your upcoming competition/match

2) Do you regard these thoughts and/or feelings as **'POSITIVE'** or **'NEGATIVE'** towards your upcoming performance

3) Please rate the thoughts and feelings as a **'PERCENTAGE TIME'** you have thought about or experienced them in the last 24 hours

4) Please identify what causes you to think these thoughts, or experience these feelings (e.g., **WHY DO** you regard them as positive or negative, and **WHAT** makes you think about them or experience them?)

Please remember be as **HONEST** as you can, and there are no **RIGHT** or **WRONG** answers. This information will help us gain an understanding of **YOUR** personal approach to competition so we can identify your strengths and areas for future work

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience in the last 24 hours** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Thought/Feeling	**Is it as <u>positive</u> or <u>negative</u> towards <u>your</u> performance?**	**<u>Percentage time</u> you have this thought or experience since you were <u>last signalled</u>** (0% = low; 100% = high)	**What <u>causes</u> you to interpret the thought or feeling as positive or negative**	**What <u>triggers</u> the thought or experience?**

Section 4.

Please complete the form overleaf

5 Days

before the competition/match on receipt of signal

5 days form 1

Please Record :

The time you received the signal _____

The time you completed the form _____

What activity were you doing when you received the signal?

_____

_____

_____

Please read the instructions carefully and respond to what you have thought or felt about the competition / match since the last time you were signalled

Thoughts and Feelings Towards Competition Form

1) Please list the thoughts and feelings you are experiencing about your upcoming competition/match

2) Do you regard these thoughts and/or feelings as **'POSITIVE'** or **'NEGATIVE'** towards your upcoming performance

3) Please rate the thoughts and feelings as a **'PERCENTAGE TIME'** you have thought about or experienced them in the last 24 hours

4) Please identify what causes you to think these thoughts, or experience these feelings (e.g., **WHY DO** you regard them as positive or negative, and **WHAT** makes you think about them or experience them?)

Please remember be as **HONEST** as you can, and there are no **RIGHT** or **WRONG** answers. This information will help us gain an understanding of **YOUR** personal approach to competition so we can identify your strengths and areas for future work

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience in the last 24 hours** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience since you were last signalled** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Section 5.

Please complete the form overleaf

4 Days

before the competition/match on receipt of signal

4 days form 1

Please Record :

The time you received the signal _____

The time you completed the form _____

What activity were you doing when you received the signal?

_____

_____

_____

Please read the instructions carefully and respond to what you have thought or felt about the competition / match since the last time you were signalled

Thoughts and Feelings Towards Competition Form

1) Please list the thoughts and feelings you are experiencing about your upcoming competition/match

2) Do you regard these thoughts and/or feelings as **'POSITIVE'** or **'NEGATIVE'** towards your upcoming performance

3) Please rate the thoughts and feelings as a **'PERCENTAGE TIME'** you have thought about or experienced them in the last 24 hours

4) Please identify what causes you to think these thoughts, or experience these feelings (e.g., **WHY DO** you regard them as positive or negative, and **WHAT** makes you think about them or experience them?)

Please remember be as **HONEST** as you can, and there are no **RIGHT** or **WRONG** answers. This information will help us gain an understanding of **YOUR** personal approach to competition so we can identify your strengths and areas for future work

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience in the last 24 hours** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience since you were last signalled** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Section 6.

Please complete the form overleaf

3 Days

before the competition/match on receipt of signal

3 days form 1

Please Record :

The time you received the signal _____

The time you completed the form _____

What activity were you doing when you received the signal?

_____

_____

_____

Please read the instructions carefully and respond to what you have thought or felt about the competition / match since the last time you were signalled

Thoughts and Feelings Towards Competition Form

1) Please list the thoughts and feelings you are experiencing about your upcoming competition/match

2) Do you regard these thoughts and/or feelings as **'POSITIVE'** or **'NEGATIVE'** towards your upcoming performance

3) Please rate the thoughts and feelings as a **'PERCENTAGE TIME'** you have thought about or experienced them in the last 24 hours

4) Please identify what causes you to think these thoughts, or experience these feelings (e.g., **WHY DO** you regard them as positive or negative, and **WHAT** makes you think about them or experience them?)

Please remember be as **HONEST** as you can, and there are no **RIGHT** or **WRONG** answers. This information will help us gain an understanding of **YOUR** personal approach to competition so we can identify your strengths and areas for future work

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience in the last 24 hours** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience since you were last signalled** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Section 7.

Please complete the form overleaf

2 Days

before the competition/match on receipt of signal

2 days form 1

Please Record :

The time you received the signal _____

The time you completed the form _____

What activity were you doing when you received the signal?

_____

_____

_____

Please read the instructions carefully and respond to what you have thought or felt about the competition / match since the last time you were signalled

Thoughts and Feelings Towards Competition Form

1) Please list the thoughts and feelings you are experiencing about your upcoming competition/match

2) Do you regard these thoughts and/or feelings as **'POSITIVE'** or **'NEGATIVE'** towards your upcoming performance

3) Please rate the thoughts and feelings as a **'PERCENTAGE TIME'** you have thought about or experienced them in the last 24 hours

4) Please identify what causes you to think these thoughts, or experience these feelings (e.g., **WHY DO** you regard them as positive or negative, and **WHAT** makes you think about them or experience them?)

Please remember be as **HONEST** as you can, and there are no **RIGHT** or **WRONG** answers. This information will help us gain an understanding of **YOUR** personal approach to competition so we can identify your strengths and areas for future work

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience in the last 24 hours** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience since you were last signalled** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Section 8.

Please complete the form overleaf

1 Day

before the competition/match on receipt of signal

1 day form 1

Please Record :

The time you received the signal _____

The time you completed the form _____

What activity were you doing when you received the signal?

_____

_____

_____

Please read the instructions carefully and respond to what you have thought or felt about the competition / match since the last time you were signalled

Thoughts and Feelings Towards Competition Form

1) Please list the thoughts and feelings you are experiencing about your upcoming competition/match

2) Do you regard these thoughts and/or feelings as **'POSITIVE'** or **'NEGATIVE'** towards your upcoming performance

3) Please rate the thoughts and feelings as a **'PERCENTAGE TIME'** you have thought about or experienced them in the last 24 hours

4) Please identify what causes you to think these thoughts, or experience these feelings (e.g., **WHY DO** you regard them as positive or negative, and **WHAT** makes you think about them or experience them?)

Please remember be as **HONEST** as you can, and there are no **RIGHT** or **WRONG** answers. This information will help us gain an understanding of **YOUR** personal approach to competition so we can identify your strengths and areas for future work

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience in the last 24 hours** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience since you were last signalled** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Section 9.

Please complete the form overleaf

1 hour

before the competition/match

(Please remember there is no pager signal for this form completion)

Please read the instructions carefully and respond to what you think and feel 'right now'

Thoughts and Feelings Towards Competition Form

1) Please list the thoughts and feelings you are experiencing about your upcoming competition/match

2) Do you regard these thoughts and/or feelings as **'POSITIVE'** or **'NEGATIVE'** towards your upcoming performance

3) Please rate the thoughts and feelings as a **'PERCENTAGE TIME'** you have thought about or experienced them in the last 24 hours

4) Please identify what causes you to think these thoughts, or experience these feelings (e.g., **WHY DO** you regard them as positive or negative, and **WHAT** makes you think about them or experience them?)

Please remember be as **HONEST** as you can, and there are no **RIGHT** or **WRONG** answers. This information will help us gain an understanding of **YOUR** personal approach to competition so we can identify your strengths and areas for future work

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience in the last 24 hours** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Thoughts and Feelings Towards Competition Form

1) Please list the thoughts and feelings you are experiencing about your upcoming competition/match

2) Do you regard these thoughts and/or feelings as **'POSITIVE'** or **'NEGATIVE'** towards your upcoming performance

3) Please rate the thoughts and feelings as a **'PERCENTAGE TIME'** you have thought about or experienced them in the last 24 hours

4) Please identify what causes you to think these thoughts, or experience these feelings (e.g., **WHY DO** you regard them as positive or negative, and **WHAT** makes you think about them or experience them?)

Please remember be as **HONEST** as you can, and there are no **RIGHT** or **WRONG** answers. This information will help us gain an understanding of **YOUR** personal approach to competition so we can identify your strengths and areas for future work

Thought/Feeling	**Is it as positive or negative towards your performance?**	**Percentage time you have this thought or experience in the last 24 hours** (0% = low; 100% = high)	**What causes you to interpret the thought or feeling as positive or negative**	**What triggers the thought or experience?**

Sheffield Hallam University

Direct dial +44 (0) 114 225 4333
Direct fax +44 (0) 114 225 4341
Email e.m.winter@shu.ac.uk

12.12.01

Owen Thomas
Sheffield Hallam University
The Centre for Sport and Exercise Science
Collegiate Hall
Sheffield
S10 2BP

Dear Owen

Title of investigation: Pre-competition positive and negative states: A qualitative in-depth inquiry

Approval Number : SLM/2001/Psychology/03/01/a

I am pleased to inform you that full approval has now been granted for this study.

Yours sincerely

Professor Edward Winter
Chair, SLM Research Ethics Committee

Study Three

Interview Guide

SECTION ONE: **General Information and Introduction**

General Information

Name..... ID N° ..... Age ..... Sport .....

Date ..... Start ..... am/pm End ..... am/pm

Location of interview .....

Hello ##########, I'm Owen Thomas from the Centre for Sport and Exercise Science at Sheffield Hallam University. Firstly, I would like to thank you for agreeing to participate in this interview. This interview forms the second part of the research study, and again I would like to thank you for your involvement in phase one, the Experience Sampling Method procedure which was used to gain an understanding of how you label your thoughts and feelings in the time leading up to competition **(discuss ESM 'thoughts and feelings')**.

Through the two phases of the study I am seeking to understand more about how players/athletes prepare for competition. The interview is orientated around reasons why you may, or may not experience negative or positive states in the time leading up to a match/competition. Specifically, how these change, your interpretation of them, what triggers them off and the frequency with which they occur for during the preparation time for a match/competition. Additionally, I am interested in learning about any strategies you may, or may not use during the

preparation time for a match/competition to possibly help yourself, or other players/athletes and coaches prepare for a game/competition.

The interview is designed to last approximately 40 - 60 minutes and will be tape recorded so that your responses can be transcribed and accurately reproduced. The material will be used for my PhD research and may be used for future publication in order to assist players/athletes regarding the pre-performance strategies they adopt. However, all information will be released in a **confidential** manor with your **anonymity** being guaranteed. You are reminded that you are free to withdraw consent or participation at any time, that you are free to refuse to answer any of the questions put to you, and that no disadvantage will arise from a decision not too participate.

Finally, may I say that there are no right or wrong answers, and I am interested in learning more about the way you prepare in the time leading up to competition. Therefore, please be honest in your responses. If you are unsure of the question, please ask for clarification or decline to answer the question. This is more beneficial for me than you telling me a fictitious response, or an answer that you think others, or I might want to hear.

The interview is broken down into several sections examining the way you usually prepare in the time leading up to a match/competition; what you do during such times, and the kind of symptoms you experience in a mental and physical way as a result of competition pressures. As I am asking about the way you tend to prepare, think, and feel you may need time to reflect before answering, please take your time, but again I emphasise don't guess. As a point of reference, the 'Thoughts and Feelings' booklet you completed for phase one of the study is here, please feel free to refer to this at any time to aid your recall of what you think or feel in the times leading up to an important match/competition. There is a section at the end of the interview where you can add any important comments that you feel haven't been covered in the previous sections of the interview.

Do you have any questions about anything I have mentioned so far?
START TAPE RECORDING OF INTERVIEW

SECTION TWO: **Competition Preparation.**

Outline : **The first section deals with the ways in which you usually utilise your time in the periods leading up to an important match/competition. Basically, I want you to set the scene on how you usually prepare for a match/event.**

Question's

1) Can you start by giving me a run through of your normal week prior to a competition/match, if you like a day to day breakdown of the things you do that affect your performance or the way you approach (think/feel about it) on match/race day.

Probes

- Training times/loads (coach controlled/self-directed)
- Tapering
- Content (Fitness orientated skill orientated)
- Working Patterns
- Social activities
- Relationship issues

2) What about a pre-performance plan? Do you have a pre-set performance plan in place throughout the week? (A traditional routine)

Probes

- Who formulates it?
- What is the breakdown of it? (day to day)
- Are mental skills built into the plan/routine
- If not a weekly plan, more specific i.e., within 2 days? 1 day?

3) When during the week do your thoughts start to turn to the competition/match itself?

Probes

- Always there
- Early in the week leading up (e.g., 1 week before)

- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race

4) Does the point at which they turn to match/competition depend on the importance of it?

SECTION THREE: **Thoughts and Feelings in the Time Leading up to Competition.**

Outline : **Now that we have set the scene about your weekly build up to a competitive event/match, I want to move on to the main interest of the interview. Basically, the way in which you respond to the pressure of the upcoming match/event and the thoughts and feelings you experience in the time leading up to it. Please feel free to refer to the 'Thoughts and Feelings' list you produced in stage one of the study at any point in the following sections. If you like, use it as a point of reference if you need to. Again, what I am interested in knowing is how you respond, and the type of symptoms (thoughts and feelings) you experience, so please take your time, and if you can't remember please tell me and don't guess. We will go through a process of first concentrating on the thoughts you experience and examine those in some detail before moving onto the feelings you experience and exploring those ok?**

Question's

1) Can you describe the thoughts (i.e., the things that run through your head) that you tend to experience as you prepare for competition?

Probes

- See ESM data
- Positive/Negative ones (i.e., anxieties and confidence not interpretation of, just types of symptoms)

(RECORD THOUGHTS ON INTERVIEW CHECKLIST)

2) Just relating to these thoughts, when do they start to occur in the time lead up to the game, when do they become more noticeable?

Probes

- Early in the week leading up (e.g., 1 week before)

- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race

3) What do you think causes the thoughts as you prepare for the game competition? If you like, what triggers them?

Probes

- See ESM data
- Importance of competition (meaning)
- External pressure; coach / team mates
- Internal pressure; self-critical; over analytical
- Are there different reasons for anxieties (or negative emotions) and confidences (or positive emotions)

4) Why do you think you experience these thoughts as you prepare?

5) Again just focusing on those thoughts, what about how these change as the game moves closer, do they change? What I mean by this is does the amount or level of them change as competition gets nearer?

Probes

- Levels/Amounts
- Low or High

(If thoughts don't change in level go to question 7)

6) So the thoughts change as the game gets nearer, what do you think causes them to change?

Probes

- Process over time
- Important game gets nearer
- Pre-viewing possible game outcomes/performances
- Training stimuli
- Contact with team mates

7) I'd now like to focus on the physical feelings for a while, can you describe the physical feelings you tend to experience as you prepare for the game?

Probes

- See ESM data
- Tension, butterflies etc
- Relaxed/Rhythm

(RECORD PHYSICAL FEELINGS ON INTERVIEW CHECKLIST)

8) Just relating to these feelings, when do they start to occur in the time leading up to game, when do they become more noticeable?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- Different timing to the onset of thoughts

9) What do you think causes these physical feelings as you prepare for the game competition? If you like, what triggers them?

Probes

- See ESM data
- Training close to the game
- Arrival at the event
- Start of pre-match routines
- Start of warm up
- Start of game

10) Why do you think you experience these physical feelings as you prepare?

11) What about how the physical feelings change as the game moves closer, do they change? Again, what I mean by this is does the amount or level of them change as competition gets nearer?

Probes

- Levels/Amounts
- Low or High

(If feelings don't change in level go to question 13)

12) So the physical feelings change as the game gets nearer, what do you think causes them to change?

Probes

- Process over time
- Game gets nearer
- Training close to the game
- Arrival at the event
- Start of pre-match routines
- Start of warm up
- Start of game

13) I'd now just like to focus on the negative thoughts and feelings you tend to have in the lead up to the game. If we concentrate on the thoughts first (**give e.g.'s from their list**) Do you use any strategies to overcome these negative thoughts, or to try and prevent an increase in them during the week leading up to competition? If we say start with the thoughts you tend to experience at times away from the game and then move to focus on ones you tend to experience closer to the game?

Probes

- Preparation based
- Pre-competition plan
- 'What if' scenarios
- Mental skill based
- Cognitive Restructuring
- Goal setting
- Self-talk
- Imagery
- 'Control the controllables'

- Concentration/Focusing routines

14) Why do you use these particular strategies?

15) When do you tend to use these strategies in the time leading up to competition?

Probes

- When training
- When preparing
- When playing/competing
- Away from sporting environment

16) Do you them more often at certain pre-match/pre-competition times?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- Only for important competition's or for every competition

17) Are any of the ones you have identified as using more helpful than others?

Probes

- Do you use any more often than others
- Under what circumstances

18) Why do you think they are more helpful to you?

Probes

- Associated with successful performance

19) What about the negative feelings (**give e.g.'s from their list**) Do you use any strategies to overcome the negative feelings, or to try and prevent an increase in them during the time leading up to competition? If we say start with the negative feelings you tend to experience at times away from

the game and then move to focus on ones you tend to experience closer to the game?

Probes

- Preparation based
- Pre-competition routines (physical preparation)
- Mental skill based
- Cognitive Restructuring
- Self-talk
- Imagery
- Relaxation
- Concentration/Focusing routines

20) Why do you use these particular strategies?

21) When do you tend to use these strategies in the time leading up to competition?

Probes

- When training
- When preparing
- When playing/competing
- Away from sporting environment

22) Do you use them often at certain pre-match/pre-competition times?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- Only for important competition's or for every competition

23) Are any of the ones you have identified as using more helpful than others?

Probes

- Do you use any more often than others
- Under what circumstances

24) Why do you think they are more helpful to you?

Probes

- Associated with successful performance

25) What about the positive thoughts and feelings you experience (**give examples from their list/ESM data**) do you use any strategies to stimulate these positive thoughts or feelings, or to increase the level or amount of them in the week leading up to competition? If we say start with the positive thoughts and feelings you tend to experience at times away from the game and then move to focus on ones you tend to experience closer to the game?

Probes

- Preparation based
- Pre-competition plan
- 'What if' scenarios
- Mental skill based
- Goal setting
- Self-talk
- Relaxation
- Imagery (best performance)
- 'Control the controllables'
- Concentration/Focusing routines
- Focus on past performance accomplishments

26) When do you tend to use these strategies in the time leading up to a match/competition?

Probes

- When training
- When preparing
- When playing/competing
- Away from sporting environment

27) Do you use them more often at certain pre-match/pre-competition times?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- Only for important competition's or for every competition

19) Are any of the ones you have identified as using more helpful than others?

Probes

- Do you use any more often than others
- Most successful, Why?
- Under what circumstances

20) Why do you think they are more helpful to you?

Probes

- Associated with successful performance

21) Finally, for this section, we have talked about the negative and positive thoughts you tend to experience in the time leading up to competition, just relating to these, out of the two which do you tend to focus on as the competition nears?

SECTION FOUR: **Interpretation of Your Thoughts and Feelings in the Time Leading up to Competition.**

Outline : **Now we have identified the kinds of thoughts and feelings that you tend to experience in the time leading up to a match/ competition, I would like to concentrate on some of them (i.e., the negative ones), and identify and explore the way you interpret them. By interpretation I mean do you regard them as positive or negative towards your future performance. During section two, and from the ESM labelling process we have identified that you sometimes experience negative thoughts and feelings (e.g., pick from their list) during the time leading up to competition. It is these type of responses that the next section deals with. Again, please feel free to refer to the ESM labelling sheets at any point during this next series of questions to use as a point of reference.**

Question's

1) Again if we just start with the thoughts, do you interpret the negative thoughts (give e.g.,'s from their list) as positive or negative towards your upcoming performance?

Probes

- Help/hindrance
- Negative but in your control

2) What would you say causes you to interpret these thoughts as **positive/negative**? (AS APPROPRIATE)

Probes

- See ESM
- Sign of importance of competition
- Sign of readiness to compete
- Goal attainment expectancy
- Past performance (success/failures)

3) Does your interpretation of certain thoughts change (i.e., positive to negative; negative to positive) as competition moves closer?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race

(If no go to question 9)

4) If so, what do you think causes this change or flip in interpretation of the thought?

Probes

- Perceptions of control/lack of control
- Increases in levels
- Increases in frequencies (number of times spent thinking the negative thoughts)

5) Why do you think they change?

6) Do you have any strategies that you use to change a negative interpretation of a thought into a positive one, if so what are they?

Probes

- Preparation based
- Pre-competition plan
- 'What if' scenarios
- Mental skill based
- Cognitive restructuring
- Self-talk
- Imagery
- 'Control the controllables'
- Concentration/Focusing routines
- Focus on past performance accomplishments

7) When do you tend to use these strategies in the time leading up to a match/competition?

Probes

- When training
- When preparing
- When playing/competing
- Away from sporting environment

8) Do you use them more often at certain pre-match/pre-competition times?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- Only for important competition's or for every competition

(Go to question 11)

9) So the interpretation stays constant over time, in that case, how is that **positive/negative** (AS APPROPRIATE) interpretation maintained? what do you focus on?

Probes

Positive	**Negative**
- Mental skills	- Past performance failures
- Pre-competition plan	- Effect of uncontrollable outside agencies
- Competition focus	- Non-competition focus
- Perceived as controllable	- Perceived as uncontrollable

10) When do you tend to focus on these in the time leading up to a match/competition?

Probes

- When training
- When preparing
- When playing/competing

- Away from sporting environment

(If positive interpretation maintained go to question 11; if negative interpretation maintained go to question 13)

11) Are any of the ones you have identified as using more helpful than others?

Probes

- Do you use any more often than others
- Most successful, Why?

12) Why do you think they are more helpful to you?

Probes

- Associated with successful performance

13) What about the negative feelings (give e.g.'s from their list) , do you tend to interpret the negative feelings (give e.g.,'s from their list) as positive or negative towards your upcoming performance?

Probes

- Help/hindrance
- Negative but in your control

14) What would you say causes you to interpret these feelings as **positive/negative**? (AS APPROPRIATE)

Probes

- See ESM
- Sign of importance of competition
- Sign of readiness to compete
- Goal attainment expectancy
- Past performance (success/failures)

15) Does your interpretation of certain feelings change (i.e., positive to negative; negative to positive) as competition moves closer?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)

- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race

(If no go to question 21)

16) What do you think causes this change or flip in interpretation of the feelings?

Probes

- Perceptions of control/lack of control
- Increases in levels
- Increases in frequencies (number of times spent experiencing the negative feelings)

17) Why do you think they change?

18) Do you have any strategies that you use to change a negative interpretation of a feeling into a positive one, if so what are they?

Probes

- Preparation based
- Pre-competition plan
- 'What if' scenarios
- Mental skill based
- Cognitive restructuring
- Self-talk
- Imagery
- Relaxation
- 'Control the controllables'
- Concentration/Focusing routines
- Focus on past performance accomplishments

19) When do you tend to use these strategies in the time leading up to a match/competition?

Probes

- When training
- When preparing

- When playing/competing
- Away from sporting environment

20) Do you use them more often at certain pre-match/pre-competition times?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- Only for important competition's or for every competition

(Go to question 25)

21) So the interpretation stays constant over time, in that case, how is that **positive/negative** (AS APPROPRIATE) interpretation maintained? what do you focus on?

Probes

Positive	**Negative**
- Mental skills	- Past performance failures
- Pre-competition plan	- Effect of uncontrollable outside agencies
- Competition focus	- Non-competition focus
- Perceived as controllable	- Perceived as uncontrollable

22) When do you tend to focus on these in the time leading up to a match/competition?

Probes

- When training
- When preparing
- When playing/competing
- Away from sporting environment

(If positive interpretation maintained go to question 23; if negative interpretation maintained go to question 25)

23) Are any of the ones you have identified as using more helpful than others?

Probes

- Do you use any more often than others
- Most successful, Why?

24) Why do you think they are more helpful to you?

Probes

- Associated with successful performance

25) Finally, just to complete this section, we have talked about whether you tend to interpret (give e.g.'s of their negative thoughts) your negative thoughts and feelings as **positive/negative** (AS APPROPRIATE) in the time leading up to competition. Just relating to this interpretation, how do you think the **positive/negative** interpretation affects your performance preparation and you actual performance.

Probes

Positive Interpretation

- Sign of readiness to prepare
- Sign of importance of competition
- Decreases focus on negative thoughts/feelings
- Increases confidence

Negative Interpretation

- Increased worry
- Over anxious
- Increase focus on negative thoughts/feelings
- Decrease in confidence

SECTION FIVE: **Frequency of Thoughts and Feelings in the Time Leading up to Competition.**

Outline : **This next section is the last main stage of the interview and it deals with the frequency with which you experience the thoughts and feelings in the time leading up to a competition/match. By frequency I mean how many times do you find yourself thinking or feeling them as competition moves closer. Again, please feel free to refer to the ESM labelling sheets at any point during this next series of questions.**

Questions

1) Does the amount of time you spend thinking negative thoughts (give e.g.'s from their list) change as competition nears?

Probes

- Frequencies (amounts)
- Increase or decrease as competition/match gets nearer
- Stays constant

(If negative thoughts do not change go to question 5)

2) When does the amount of time you spend thinking negative thoughts start to change?

Probes

- Never changes
- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- During competition

3) What causes the changes do you think, what triggers you to start thinking negatively more/less often as the competition or match moves closer?

Probes

- See ESM triggers
- Training times
- Contact with team mates/training partners/coaches
- Thinking of, or reviewing previous performance failures
- Pre-match team meetings or briefings
- Arrival at the venue
- Start of warm up

4) Why do you think these changes occur?

5) Do you employ any strategies to avoid this increase in negative thoughts as the competition/match moves closer?

Probes

- Preparation based
    - Pre-competition plan
    - 'What if' scenarios
- Mental skill based
    - Thought stopping
    - Cognitive restructuring
    - Self-talk
    - Imagery
    - 'Control the controllables'
    - Concentration/Focusing routines
    - Focus on past performance accomplishments

6) Do these strategies just cause your negative thought amounts to decrease, or do they just stop them from increasing further i.e., keep them maintained at a frequency with which your ok with?

7) When do you tend to use the strategies in the time leading up to competition?

Probes

- When training
- When preparing
- When playing / competing
- Away from sporting environment

8) Do you use them more often at certain pre-match/pre-competition times?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- Only for important competition's or for every competition

9) Are any of the ones you have identified as using more helpful than others?

Probes

- Do you use any more often than others
- Most successful, Why?
- Under what circumstances

10) Why do you think they are more helpful to you?

Probes

- Associated with successful performance

11) How do you think this increase in negative thoughts affects your performance preparation and your actual performance?

Probes

Positively

- Sign of readiness to prepare
- Sign of importance of competition
- Increased awareness

Negatively

- Increased worry
- Over anxious
- Increase focus on negative thoughts/feelings
- Decrease in confidence

12) What about the negative feelings (give e.g.'s from their list), does the amount of time you spend experiencing negative feelings change as competition nears?

Probes

- Frequencies (amounts)
- Increase or decrease as competition/match gets nearer
- Stays constant

(If negative thoughts do not change go to question 16)

13) When does the amount of time you spend experiencing negative feelings start to change?

Probes

- Never changes
- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- During competition

14) What causes the changes do you think, what triggers you to start experiencing negative feelings more/less often as the competition or match moves closer?

Probes

- See ESM triggers
- Training times
- Contact with team mates/training partners/coaches
- Thinking of, or reviewing previous performance failures
- Pre-match team meetings or briefings

- Arrival at the venue
- Start of warm up

15) Why do you think these changes occur?

16) Do you employ any strategies to avoid this increase in negative feelings as the competition/match moves closer?

Probes

- Preparation based
- Pre-competition plan
- 'What if' scenarios
- Mental skill based
- Cognitive restructuring (rationalisation)
- Self-talk
- Relaxation
- Imagery
- 'Control the controllables'
- Concentration/Focusing routines
- Focus on past performance accomplishments

17) Do these strategies just cause your negative feeling amounts to decrease, or do they just stop them from increasing further (i.e., keep them maintained at a frequency with which your ok with?)

18) When do you tend to use the strategies in the time leading up to competition?

Probes

- When training
- When preparing
- When playing / competing
- Away from sporting environment

19) Do you use them more often at certain pre-match/pre-competition times?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- Only for important competition's or for every competition

20) Are any of the ones you have identified as using more helpful than others?

Probes

- Do you use any more often than others
- Most successful, Why?
- Under what circumstances

21) Why do you think they are more helpful to you?

Probes

- Associated with successful performance

22) How do you think this increase in negative feelings affects your performance preparation and your actual performance?

Probes

Positively

- Sign of readiness to prepare
- Sign of importance of competition
- Increased awareness

Negatively

- Increased worry
- Over anxious
- Increase focus on negative thoughts/feelings
- Decrease in confidence

23) What about positive thoughts and feelings, does the amount of time you spend thinking these type of thoughts or experiencing these symptoms change as competition nears?

Probes

- Frequencies (amounts)
- Increase or decrease as competition/match gets nearer
- Stays constant

24) When does the amount of time you spend thinking positive thoughts or experiencing positive feelings start to change?

Probes

- Never changes
- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- During competition

(If positivity does not change go to question 27)

25) What causes the changes do you think, what causes you to start thinking positively more/less often, or what do you think causes the positive feelings to occur more/less often as the competition or match moves closer?

Probes

- See ESM triggers
- Training times
- Contact with team mates/training partners/coaches
- Thinking of, or reviewing previous performance accomplishments
- Pre-match team meetings or briefings
- Arrival at the venue
- Start of warm up

26) Why do you think these changes occur?

27) Do you employ any strategies to stimulate the increases/maintain the positive thoughts and feelings as the competition/match moves closer?

Probes

- Preparation based
-Pre-competition plan
- 'What if' scenarios
- Mental skill based
- Goal setting
- Self-talk
- Relaxation
- Imagery
- 'Control the controllables'
- Concentration/Focusing routines
- Focus on past performance accomplishments

28) Do these strategies just cause your positive thought and feeling amounts to be maintained, or do they actually cause an increase in the amount of time you spend thinking positively?

29) When do you tend to use them in the time leading up to competition?

Probes

- When training
- When preparing
- When playing/competing
- Away from sporting environment

30) Do you use them more often at certain pre-match/precompetition times?

Probes

- Early in the week leading up (e.g., 1 week before)
- Late in the week leading up (e.g., 2 days to 1 day before)
- Only when close to the match/event (e.g., 2 hours to immediately before)
- Only during the match/race
- During competition
- Only for important competition's or for every competition

31) Are any of the ones you have identified as using more helpful than others?

Probes

- Do you use any more often than others
- Most successful, Why?
- Under what circumstances

32) Why do you think they are more helpful to you?

Probes

- Associated with successful performance

SECTION SIX: Concluding Remarks

Outline : Right, that just about brings the interview to an end, however, before we finish there are just a couple more questions I would like to ask.

Questions

1) Are there any areas that you think we failed to cover relating to how you prepare for competition?

2) Is there anything else you would like to add about the way in which you react either positively or negatively to the competition or match itself?

3) Do you think I led, or influenced your answers away from the things you wanted to get across?

4) Do you think the interview could be improved in any way?

4) Is there anything else you would like to add?

Many thanks for your time and involvement in this interview

STOP TAPE RECORDING OF INTERVIEW

Interview Checklist One

Proposed Intervention Effect -

Increase in Positive Thoughts and Feelings (Levels)

Orientation	Section	Question	Status (Tick when asked)
Cause of Positive Thoughts and Feelings	2	3	
	2	4	
Temporal Nature of Thoughts and Feelings	2	2	
	2	5	
	2	6	
Strategies Used to Increase Positive Levels	2	14	
Situation/Timing of Strategy Use	2	15	
	2	16	
Helpfulness of Strategies	2	17	
	2	18	

Experienced Thoughts and Feelings

POSITIVE		NEGATIVE	
Thought	Feeling	Thought	Feeling

Interviewee ID N° .....

Interview Checklist Two

Proposed Intervention Effect -

Restructure from Negative to Positive Interpretation

Orientation	Section	Question	Status (Tick when asked)
Reason for Positive Interpretation	3	2	
Temporal Nature of Interpretation	3	3	
	3	4	
	3	5	
Strategies to Restructure Negative to Positive	3	6	
Situation/Timing of Strategy Use	3	7	
	3	8	
Strategies to Maintain Positive	3	9	
Situation of Strategy Use	3	10	
Helpfulness of Strategies	3	11	
	3	12	

Interviewee ID N° .....

Interview Checklist Three

Proposed Intervention Effect -

Decrease Negative Thought and Feeling Frequencies

Orientation	Section	Question	Status (Tick when asked)
Temporal Nature of Negative Frequencies	4	1	
	4	2	
	4	3	
	4	4	
Strategies to Avoid an Increase in Negative Frequencies or, Strategies to Decrease Negative Frequencies	4	5	
	4	6	
Situation/Timing of Strategy Use	4	7	
	4	8	
Helpfulness of Strategies	4	9	
	4	10	

Interviewee ID N° .....

Interview Checklist Four

Proposed Intervention Effect -

Increase Positive Thought and Feeling Frequencies

Orientation	Section	Question	Status (Tick when asked)
Temporal Nature of Positive Frequencies	4	11	
	4	12	
	4	13	
	4	14	
Strategies to Avoid a Decrease in Positive Frequencies or, Strategies to Increase Positive Frequencies	4	15	
	4	16	
Situation/Timing of Strategy Use	4	17	
	4	18	
Helpfulness of Strategies	4	19	
	4	20	

Interviewee ID N° .....

Interview Transcript Example - Debilitator (Subject: D3)

OT: right as I said... the first section deals with the ways you usually utilise your time as the games get nearer try and put things into perspective of the week leading up to the game (right) so to start off with if you basically set the scene on how usually prepare for the game in terms of like a breakdown of your day to day routine that effects the things that you do on a Saturday

D3: yeah ok like training and things (yeah) erm... I usually don't do anythin on a Monday what with being away on the weekend I usually just want to chill out on a Monday (yeah) Tuesday I would go to gym (yeah) obviously working in the day erm... Tuesday night I'd go to the gym Wednesday possibly go to the gym erm depending on whether tired or not erm cos I've got a right thing about if I'm too tired I won't be able to do anythin and then I'll be tired for the weekend (yeah) I know when I was younger I used to be able to do anythin play run do anything (mmm) and now I just feel as though I can't whether that's all up in here or not (points to head) I don't know but I didn't used to be like that then obviously training Thursday and then Friday I do nothin (yeah) and then Saturday we play so usually sometimes its only once a week I get to train on top of Thursday (yeah)which is not ideal but I don't need to do anymore

OT: when you go to the gym what sort of stuff do you do

D3: erm aerobic mainly... cos I can't lift any weights (both laugh) I'm just too weak so its all treadmill and cross trainer and that escalator thing (stair climber) yeah but weights I do I do a bit of weights cos I know I need to but I'm incapable really so I just stick to the aerobic stuff

OT: what about in terms do your working patterns sort of effect anything that you do in terms of leading up to hockey

D3: erm.. not really cos I work half 8 till half 4 everyday erm so its quite stressful cos its like my parents business (right) so its quite a lot on me quite stressful (mmm) erm but so no I only do accounts and things wages so its nothing physical that its mentally tiring (yeah) sometimes I'm like oh my god I feel like I've done a marathon but no its not work no it doesn't really affect it

OT: ok if we get a little bit more specific maybe a little bit closer to the game do you have like a set pre-performance plan or pre-performance routine that you tend to follow (for the week or just for the game) well for if its for the week then yeah but... when does it start for you

D3: well nothing really for the week... just that I don't train that much cos I'm so worried about being tired for the weekend (yeah) that's one thing I do but erm Friday nights we don't tend to do anything (mmm) because I've got a game on the Saturday I just like to chill out and that's obviously with Gordon unless last week we had a birthday party for the children you know which I don't not go (mmm) you know but that I tend to just chill cos I've got to get up at like 8 o clock to get down for the game so I don't like a late night really so apart from that no there's nothing that I specifically do

OT: right.. so in terms of organising your time from the Thursday you don't have a set routine a sort of sorting your kit out and

D3: I obviously do that on a Friday night (yeah) do that and I tend to do it when I earlier on in the night so that erm Gordon and I have the last part of night together (mmm) so you know we can watch the tele and chill and go to bed and things like that... so I try to get myself organised so I suppose I do actually try n get myself organised earlier on (mmm) and then I've got the rest of the night to relax

OT: cos I suppose it's a bit different for you cos you coming down on Thursday and then back up on Thursday so you've got to organise yourself

D3: yeah completely and especially this weekends a bit hectic I had to pack my bags on Wednesday night (yeah) for like cos I'm staying down Saturday so I've gotta pack for Sunday so its like (suitcase) yeah god you should see the clothes I've got upstairs I've got a whole wardrobe (both laugh) but yeah no I suppose I do in away have a little routine where I have to get myself organised and then I don't do anything like I eat a proper a meal and (mmm) and that's it really

OT: does that sort of routine have a set time period that follows or

D3: not really... erm... no I wouldn't say it does I just don't tend to do anything on a Friday (mmm) no no I wouldn't say

OT: ok... what about if we just concentrate on the thoughts that you tend to have about the game is there a point within the week when your thoughts start to turn towards the game

D3: erm I would say Wednesday... that's when really I start to think about it cos I've got training the next day (yeah) so on Wednesday night I have to pack my bags cos I leave straight from work on Thursday (yeah) cos then obviously when trainins finished I get back (yeah) Friday its like getting ready and then its game so like once Wednesday comes its sort of rolls into Saturday from there

OT: ok... what about if those thoughts do they occur earlier or later or at different times depending on the importance of the game

D3: erm... well to me there all important (mmm) cos I've never really played against any of the teams before so I don't class any of them as less important than others (yeah) some I thin that some I think that we could win more than others (mmm) but I'm so excited about playing that there all just you know so good so I don't class any of them as more important than others

OT: right ok... that brings the first section to an end... the next section deals with specifically the thoughts and feelings that you tend to have as the game gets closer... so if we concentrate on from the Wednesday onwards (ok) erm... again if you need to use the booklet as a point of reference then do so... what I'm interested in about really is how you respond to the game in the time leading up to it and the pressure
of it the games itself the sort of symptoms mentally and physically that you tend to experience as a result of that... erm we'll go through it as a process and to start off with we'll concentrate on the thoughts that you tend to have and then we'll move on from the thoughts and focus on the physical feelings that you might have when the game gets closer (ok) and but again we'll go through it in that process way and again this is where I might write a few things down so if I start doing that don't get worried (ok I won't) (laughs) so to start off with if you could just describe the thoughts the things that go through your head as the game gets closer as you prepare for the game

D3: erm... well I would say for the Wednesday cos Monday Tuesday Wednesday I don't really... erm... it depends whether I'm tired or not as well that

has a big difference on me (ok) if I'm not tired erm I'll be like really up for it but if I'm tired I tend to get worried that I'm gonna be tired and that I'm not gonna be able to do it (yeah) and then if I worry about it I tend to get a bit erm anxious I would say

OT: ok... what about as the game gets a little bit more closer

D3: I start to get a bit more focused... erm... especially Friday because Thursday to the game I'm like straight to trainin so Thursday I tend to think about training but Friday yeah I'm like focusing on the game and up for it but again it depends if I'm tired or not (yeah) as to whether I'm up for it in a good way or if I'm up for it thinkin oh I'm not gonna be able to do this (yeah)

OT: and again we've maybe mentioned it but those thoughts... when do they start to occur when do you start to really notice them

D3: erm... I would say actually on the way back from trainin I tend to do a lot of thinkin about the game (right right) erm cos that's the next thing (yeah) you know trainin's finished (yeah) so I don't have to think about trainin anymore so you know I do think about the game a lot on the way home seen as though I've got an hour and half to thin about it (yeah) but yeah I do I tend to think about it a lot then erm

OT: what sort of things would you be thinkin about

D3: erm... if it's a good trainin session then I'd be that brings out positive things you know like a lot of it for me is if the team spirits (yeah) there if we've had really good fun like last night was fun and for me a lot of it is fun (yeah) it has to be fun cos I wouldn't travel 220 miles (yeah) you know every Thursday and 220 miles on a Saturday (yeah) if it wasn't fun and erm that's a big thing for me and if the teams spirits there then that I really think that I'm up for the game

OT: ok... what about what do you think causes you to have the thoughts as you prepare for the game

D3: what causes them

OT: yeah what causes them what triggers

D3: erm... trainin well trainin effects it whether its good or bad (yeah) it effects the thoughts erm... erm... I don't know really probably not the answer your looking for (laughs) but I'll get there in the end (laughs)

OT: what about pressures... do you put any pressures on yourself

D3: yeah too much (yeah) too much cos I worry about what other people think I've got a big kinda self-confidence thing that I don't think people have confidence in me (right) erm... so if I've had a good trainin session on the Thursday I think I'm more like if I personally (yeah) yeah you know if my touch is alright and you know and whatever then I tend to think a bit more positively (ok ok) but I do worry about you know oh god you know that's my touch is not very good... people can see that

OT: so that would may be be pressure from an internal perspective isn't it (yeah mmm) that's it maybe pressure from what you think people are thinking externally of you

D3: yeah yeah completely I do erm I do have a self-confidence problems the

I need to get over more than its not really what anybody I tend to think that people are thinkin it of me and probably there not (yeah) does that you know what I mean (yeah yeah) so... and that puts the thoughts into my own head nobody has to say anything I turn things round to get them to that turn them into negative thoughts (so you turn them that way rather than) yeah (rather than turn them the other way) yeah yeah I do a lot (mmm) I do a lot (mmm) I turn I do tend to turn things negatively rather than towards the positive well I do I do

OT: right if we just focus on the thoughts in terms of how they change as the game moves closer (mmm) so from the Wednesday onwards again if we concentrate on that.. what I mean by change is does the level that you experience change as the game moves closer

D3: yeah yeah by the time erm Friday by the time works coming to end on the Friday (yeah) erm yeah its on my mind big style by the time I've finishing work (yeah) and then Friday night yeah as well although don't tell Gordon that (laughs) well he's got his football... (well there you go) no but Friday night yeah I do on Friday night and then em Saturday on the way down

OT: so you'd say its increasing (yeah definitely) as the game gets nearer... what do you think causes them to increase as the game gets nearer

D3: causes them to increase oh my god erm... the fact that the game is nearly here (yeah) more excited as it closer cos like Wednesday I'm like its too far away (yeah) where as Friday night I'm like that one nights sleep and I'm like there you know (yeah) erm... so yeah

OT: ok what about again if we come back to the importance of the game would that would that that sort of process change depending on the importance of the game

D3: no no the same regardless (no) obviously friendlies erm (yeah) I don't but for all national league games regardless of who it is cos they all have there own importance (yeah) like Slough and Clifton you know there top of the league or whatever and we're not supposed to beat them but its such a challenge you know its like oh you know I don't care who you are (yeah) where as Sutton and people like that where we're expected we want to beat them (mmm) there just as important when you compare

OT: what about if we sort of concentrate on physical feelings we've talked about the thoughts there for quite a while... do you do you have any physical feelings that you tend to get as the game gets closer

D3: yeah... I feel sick (laughs) no not quite that bad but I do get erm tenseness in my stomach and I struggle to eat erm... I have to force myself to eat

OT: is that before the game

D3: erm on the mornin on the mornin of the game yeah (yeah) I struggle to eat the night before I'm fine I can have a nice meal and am ok but the morning of the game yeah I really struggle to eat

OT: what about drinking

D3: I don't do much drinking Owen (no) mmm should I know I should take more than I do

OT: yeah cos that's it of you can't if you can't get any food down you the best thing to do is get some carbohydrate powder solution or something like that (yeah) mix it in and drink that in the mornin (I struggle to do that as well) cos you need that that energy from somewhere in the morning

D3: yeah I know

OT: especially with at the moment playin the two games in a weekend thing
that you really need to take on some carbohydrate or electrolyte drink after the first game cos that first 20 40 minutes after the game your body absorbs carbohydrates about four times at the rate that would do if you were to just take it now (so we need to do that next weekend then) yeah so I'm trying to sort some out for you lot I've had a chat to Stoves

D3: oh brilliant oh quality

OT: ok what about other sort of physical feelings do you ever get butterflies or relaxed or

G: erm... god yeah I get butterflies yeah erm.. certainly not relaxed certainly not relaxed (laughs) erm.. I feel heavy legged (right) whether that's mentally or not I don't know but I do

OT: like tired and lethargic

D3: yeah... and yet I don't know why because like mentally I'm like you know I'm ready for it but physically I sometimes just feel like

OT: when do you when do you sort of get those feelings... those sort of physical feelings like that when do they start to come on

D3: erm... Friday night mmm and saturday mornin god yeah saturday mornin big style

OT: right... and do they do they sort of change as the game gets nearer from Friday night

G: yeah they do... they increase I feel heavy legged right through and I hate the warm up and I do feel heavy legged in the warm up (feel heavy legged in the warm up) yeah I do I do... but I don't know whether it's a mental thing

OT: does it go away when you start the game

D3: yeah it does it does... but it it erm... I always think oh god I'm tired and will I be able to do it and (yeah) so it gets me down before I've even (yeah) got up there do you know what I mean
OT: yeah ok... do you think the sort of intensity of the warm up has an effect on that

D3: no I don't think it does at all you know I've done harder warm ups before

OT: yeah that's what I mean.... (oh sorry) do you think it should do you think if it was more intense it would maybe take those feelings away a little bit

D3: erm... possibly but I don't... I hate warm ups so I'm not really a warm up person anyway

OT: and again just comin back to this... what do you think causes the physical feelings we've talked about the causes of the thoughts what about the causes of the physical feelings

D3: I think its that... half the time its me thinking worrying and just .... I do think I do I do put a lot of onto myself lack of confidence... pressure

OT: so you'd say the thoughts maybe precede the feelings or course the feelings

D3: yeah I would say that... yeah I would say that I don't help myself (right) cos I tend to think really negatively... I tend to think I'm tired and worried so I become tired... so then my legs feel heavy you no what I mean I'm not sayin that there not heavy (no) but I tend to convince myself that I'm tired which is not good and then I worry about that you know... mmm especially after trainin on the thursday... those kinda feelins will be around for me on the friday and i can convince myself that I'm tired which certainly doesn't help me

OT: ok... I'd just like to the next bit focuses on the negative thoughts and feelins that you tend to have... and then we'll move on and talk about the positive ones (we might be on the negatives for a while) (laughs) (both laugh) and then we'll sort of like that will pull the second section to the end (ok) so... if we focus on the negative ones
we've talked about tired worried nervous and maybe a bit heavy legged and
all that... do do you have any strategies that you try and use to overcome those thoughts or than those feelings

D3: no no not really no I haven't got any

OT: what do you what do you do then when those thoughts and feelin's start
to occur

D3: erm... I don't really do anything.. its more when we get together when everybody gets together that they sort of that I start to get through.. when I start to feel a bit more.... possibly more like that at there's 16 of us as oppose to oh my god all the pressure's on me (mmm) although the pressure certainly doesn't come off (yeah) I tend to fell like more like we're all in it together (yeah) do you know what I mean (yeah)

OT: so you wouldn't have any preparation based stuff that you'd maybe do to

D3: no... no I haven't got anything.... if anything I'll try to stop thinkin about things (yeah) think about other things

OT: so you'd maybe make a conscious effort to stop thinkin about it (mmm) what about in terms of if we get into the sort of traditional mental skill based stuff do you use self talk talk to yourself talk yourself up a little bit

D3: erm... it try... I try (how do you find that) not very good... not very good... I speak to my mum erm but to myself its difficult

OT: difficult to start it or difficult to listen to what your saying

D3: yeah I don't really.. I don't I don't sort of I don't know... I'm not very erm... I don't really believe it kinda thing I don't know I can't really build myself in that way really (right) I struggle to do it to say it to myself

OT: what about in terms of do you sort of look at or go over in your mind sort of past performances that you've done that have been strong

D3: yeah I do do that actually I try and erm pick something up cos I think the best game I've had for ***i was erm *... I think I played quite well then (mmm) so I try and pull that out and you know try to remember back to then....**

OT: yeah... how do you do that... what sort of process do you go through

D3: just think about the different things that we did during the game... (yeah) you know the good things that I did the passes that I did

OT: do you try and visualise that

D3: yeah yeah

OT: how do you find that goes

D3: yeah I do I do think that but then... all the others come in you know like the ones where I didn't do really well (yeah) you know like when I played a bad pass and they then push them all aside

OT: so you start seein it but then the negative ones override it

D3: yeah yeah I can't keep the control....

OT: if you... do you do you tend to sort use those strategies maybe away from hockey when your thinking about the game... if you sort of start to feel negative about the game on the Thursday or the Friday would you sort of say well if I look back to this... x y and z that I've done

D3: I do try yeah... but I don't its still the same thing that erm the negatives out way the positive ones and they creep in and I can't control them

OT: what about for trainin... do you... do you do what about if things aren't maybe workin out in trainin.. what do you try and do to flip yourself out of that

D3: erm just enjoy it (mmm) that's one of the main things for me... if I'm enjoying it I will start to think I'm ok... but if I start to get a bit stressed and that then I start to get more stressed thinkin about doing things wrong (mmm) and then.... enjoy it is a good one for me... if I'm enjoying it then I can pull myself out of it and I'm not worried about whether I've done something stupid or whatever (yeah) but I don't have much pressure in trainin anymore (no) I used to when I first came... I was like oh my god I need to pass the ball you know perfectly... and now I don't I don't put pressure on myself in trainin (mmm yeah) erm... I think that's just cos I know all the girls now (and they know you as well) yeah yeah erm so trainin no traiin doesn't bother me really... but if I'm enjoying it I can pull myself around... you know like the other week when I was so bad at everything that I just did... but I enjoyed it you know (yeah) so that doesn't that wasn't like negative (mmm) I didn't find that negative you know that wouldn't effect me on a Saturday (right)

OT: ok... would you tend to sort of try and focus on those things the strategies we've mentioned there at different pre game times... would you know... if your feeling negative close to the game would it become more important to you to get yourself out of that mindset

D3: erm the closer to the game the more important it is (mmm) cos when its not when the games not near I can sort of switch off and concentrate on work or whatever (yeah yeah) but yeah closer to the game yeah I find it more... I need to I need to get myself out of it basically cos when I think that negative way... it can pull me down you know (right)

OT: ok...and again in that situation what would you try and do to what would you try and do to turn that around

D3: erm to be around people (right) I need to be around people and get that buzz from everybody else

OT: any particular people on the team

D3: yeah there are there are people yeah I think every body gets a buzz of different people... I'd say ** (yeah)... **** a big one for me (mmm) and *** in her own world cos she's so like passionate for it (yeah) and even when she's mardy I just you know she just brings it out of me helps me stay more positive**

OT: well she makes people laugh.. which in a way does that make you enjoy it more you know

D3: yeah completely... it does for me cos that's a big thing for me that is one of the things I need... the enjoyment side... and ** so level headed that she you know that if I'm nervous or worried she comes to me and she... **** really good (mmm) and ***** just makes me laugh and she brings that side out erm... *** and **** have a big influence although.... I don't know what I'm trying to say... not in the way that ***** does for me and not in the way that **** does... yeah I would say them four mainly**

OT: right this second section deals with the way that you interpret those negative thoughts and feelins that we've talked about... so again we're trying to get things into during the time leading up to the game... we'll start with the thoughts and then we'll move on to the feelins (yeah ok) so if we just concentrate on the thoughts the worried the nerves lack of self belief... do you interpret those as a positive or negative thing towards your performance

D3: the worry definitely negative (mmm) cos I worry about what whether I'll be able to do it whether I'll play right and things like that (mmm) nerves erm kinda positive... to a point (yeah) kind of...

OT: in what sort of way

D3: erm cos it means that I'm kinda excited about it and you know (yeah yeah) so its kinda positive with nerves although they can get to a point where I think... shit you know that's a bit... I get too nervous yeah yeah and I start to worry again... so I kinda interact them a bit and if I get to that then I'll worry (yeah) but nerves are quite good yeah I don't mind nerves cos it means that I'm excited and looking forward to it... as long as there not too much....

OT: so... what would you say causes you to interpret the sort of worried thoughts... when you get to that point where the nerves are bad and you worried what causes you to interpret them as negative why do you think

D3: cos I always think them... well I always think the negative things from like erm... will I be able to do it will I be able will I pass the all right (yeah) will I you know what I mean all the general things I'll think about them negatively so I'll kinda worry about myself that I'll not be... up for it not be able to cope with the situation

OT: does that change in terms of the importance of the game

D3: no not really cos there all as... all the games are like as important as each other cos there all for different reasons there all as important as each other whether your playing the top team or the bottom team it doesn't matter (mmm) cos you know the top team tend to have all the better players so your up for that (yeah) and the bottom team well we need the points off them (yeah) so there all just as important as each other

OT: ok... what about would you interpretation of them maybe we've talked about a little bit about this already change from positive to negative or negative to positive

D3: worry (yeah as the game gets a little bit nearer) erm... no stay negative

OT: stay negative... so that's like always a negative... but the nerves

D3: the nerves are difficult they can be kinda positive... (yeah) you know I don't mind the nerves cos that means that I'm like (mmm) up for it but they can get to worry you know and worry I always think like oh god I'm not gonna be able to do it so the nerves can lead to that

OT: right ok... and we come back to the strategies that you maybe try and use to try and avoid that.... you've got to that stage where the nerves have gone to worry and you need to change that negative interpretation into positive... do you have any.. anything which you try and use

D3: erm... kinda well I try and think like I said earlier see the things that I've done right you know in previous games... you know when I've had a good game or what ever (mmm) but it still doesn't kinda... kinda the negatives push the positives away for me you know

OT: right so you start off with that positive... how would you go through that process... describe that process to me

D3: I'd try and just... just what do you mean thinkin of the positives (yeah what would you go through) just think of the games that I've done well in... see the passes that I've made and see the tackles (yeah) and then but then it would go back to will I be able to do that this weekend and it pushes it away (mmm) you know what I mean cos although I did it last weekend it doesn't mean to say that I'll do it this weekend... and then those negative ones come in as well... I'll see the passes I've missed and the bad ones... do you know what I mean they will come in and I will play those see al those

OT: right ok... yeah yeah yeah what about in terms of talkin to yourself in those situations would you as your thinkin those sort of well I did this last week... would you be talking to yourself at the same time

D3: no (no... what do you do then) just kinda think about it... just think about it (do you see it) erm yeah sometimes... yeah I see the passes and I see the tackles (yeah) yeah I do yeah I do

OT: do you make a conscious effort to do that

D3: yeah I have to consciously think... hard to try and get the positive images in otherwise they'll all be negative

OT: would that sort of situation... when would that occur... would that occur all the time in the lead up to a game or would it just be close to the game or

D3: it would tend to be closer to the game really when I start to think about it (right) ... probably like on a Friday really cos erm Thursdays trainin (mmm) and so its like after that really that you know I'm up for it after Thursday (yeah) Thursday I start to think about it really and Friday is where I start to go through that process of trying to convince myself that I'm gonna do all right (laughs) but it never works... before that its ok you can just forget about it the games too far away you know

OT: ok... what would... so when would you say is the time that your most likely to go through that process

D3: Fridays (Friday's... so what about the mornin's of the games) erm... yeah but that yeah I suppose that as well...Friday's and the mornin's of the games (yeah) not particularly before (no) cos I'm more thinkin about before that's trainin and... work and all that all that crap (laughs) (both laugh) but then so yeah then Friday's Friday nights a real (yeah) cos I get all my kit together and that's when I'm thinkin about it

OT: is that cos you've got time on your hands

D3: yeah I've got a night I've got a night to go... (mmm) where as the Saturday mornin I'm travelling down... I get up early obviously travel down and I don't really have the you know... well I think about it on the journey down but its kinda here then so its kinda excitement as well (right) where as Friday night I've still got a night to go so its kinda you know what I mean... I've like... I've got mixed feelings on the Friday night

OT: right ok... what about the sort of negative feelin's there we've talked about the thoughts (mmm) the feelings we identified like the butterflies heavy legged and tired... and the sicky feelings (mmm)... how do you interpret those feelings

D3: butterflies I think are good (right) cos it means I'm nervous but kinda excited at the same time too (ok) erm heavy legged not good (mmm) cos I just think oh god I'll be tired and I wont be able to run around and I'll be you know I won't be able to do it so heavy legs are really negative I don't like to be heavy legged (mmm) erm... feelin sick... that doesn't happen very often (yeah) but erm... I don't know about feelin sick I would maybe put that in the same boat as the butterflies really (right) that I must be up for it... up to a certain point though for them and then I think oh god there getting too much and then the worry comes you know

OT: ok... why do you think you interpret the sort of butterflies and a little bit of the sicky feelin's as ok in comparison to interpreting the heavy legs as negative

D3: cos the butterflies I think of being I must be excited (yeah) well I am excited about it and its like that (yeah) .... that kinda of erm waiting for it to happen (yeah) you know excited basically

OT: so you associate those type of feelin's with excitement... in comparison to what the heavy legged ones what

D3: heavy legged I just... I just think oh my god I'm not going to be able to do it... not gonna be able to run around I feel tired I feel sluggish (yeah)

OT: yeah ok... do you do you do anything to overcome those feelings and that interpretation of them

D3: the heavy legged (mmm) erm... try to forget about it really and it depends how I feel I the warm up (right) ... and the first couple of minutes in the game as well there quite crucial for me

OT: how... what

D3: erm for how I feel... if I'm if I ... once I start concentrating on the game I don't really think about anythin like that (no) so its not such a bad thing once I start playin (mmm) but before the game I can convince myself that I'm tired and unfit and (mmm) cos I'm heavy legged and then that all rolls into one and then I'm worried that I can't do it and aggghh you know its like a roller coaster thing (vicious circle type thing) mmm yeah...

OT: what happens if you get in that vicious circle that roller coaster... what do you try and do to get out of it

D3: erm... have a good warm up really like my warm up (what's your warm up) my warm up (walk) (both laugh) not do a lot of runnin (both laugh) erm... I don't know what's my warm up erm... I don't know really just what we do but just at my own pace and at my own I need to do it... you know I've being doin it for long enough so I know what I like

OT: do you prefer to be quiet and in you own little world at that time

D3: not really no (no) no I like to be with others... cos I think if I'm on my own I think about things too much (yeah so you like to be distracted a little bit) mmm... mmm... not too much (no) but yeah I do like to be distracted

OT: ok so what do you use for that distraction then

D3 :just being with everyone else gettin the vibes from everybody else that there excited (mmm) you know its like together not just thinkin about me being on my todd and (yeah)
OT: ok yeah fine... so to sum that section up... erm we've talked about whether you tend to interpret the thoughts and feelin's as positive or negative as the game gets closer (mmm) how do you think the negative interpretation of things affects you preparation for performance and you actual performance in the game

D3: how do they affect me (yeah do you think it's a good thing or a bad thing for your performance) erm all the thoughts the feelin's erm... depends on what they are I think... (right) the heavy legs not a good thing as that doesn't prepare me very well cos I think that I can't do it so I don't erm... I don't know if I feel heavy legged I don't want to run and I don't want to in the warm up cos I'm gonna make myself more tired (yeah) so that doesn't help my warm up really (right ok) erm... but the butterflies and is kinda positive towards it up to the point you know... cos yeah you know if I didn't get butterflies I wouldn't want to
be there really (yeah) cos it would mean I didn't want to play

OT: right ok that's fine... that sums up that section.... so the last bit deals with the frequency with which you experience them as the game gets closer... so by frequency what I mean is the amount the number of times you have the thoughts (right) or the number of times you experience the feelin's as the game gets closer (ok) so again we'll concentrate on the thoughts again to start off with (and then go onto the feelings) onto the feelings after that (right ok)... so does the amount of times the frequency with which you think about negative thoughts change as the game
gets closer

**D3: erm...yeah yeah it does cos Mondays really I don't think about it (mmm) Tuesday's I go to the gym and really depends on whether I have a good gym session or not (right ok) that helps to go along way whether I'm positive or negative (yeah) cos if I feel good if I do a good run then I feel I think you know that I'm raring to go erm... Wednesday I sometimes go to the gym but then really Wednesday's I'm tryin to get myself organised for trainin on Thursday (yeah you must have to be really organised) yeah I do (I'd be terrible at that) yeah I know well... so yeah Wednesday's I'm kinda getting ready for Thursday which I do look forward to you know I look forward to comin so that's quite good I don't really have nay negatives on Wednesday (mmm) cos I'm kinda lookin forward to the cos there's no pressure on a Thursday... there used to be but there's not any more (no) you know I just think... I used to put pressure
on myself that I didn't (was then when you first came across) yeah but oh god if I didn't do everything right but now I don't feel like that at all.. I'm just happy like if I make a mess it doesn't matter you know laugh about (let everyone take the piss) exactly and then move on (yeah move on) ...but it did used to bother me but now its not so I really look forward to the Thursday (yeah ok) erm... and then Friday's I start to get oh my god those thoughts nervous thoughts a lot more often what ever**

OT: what do you think triggers that

D3: because... because I'm finishing work (mmm) erm... it's the weekend basically and its here its here

OT: do you think trainin anyway acts as a trigger for you to increase the frequency

D3: if its good... then it can act kinda positive you know if I don some good things or if its fun.. if its fun more than anything... its gotta be fun cos that's why I'm here really (yeah) erm... so yeah... but if its not very good or if you know like people aren't up for it then it can be a bit of a downer you know

OT: yeah ok... how do you cope with that

D3: I don't know really... I don't I suppose (right) the feelins are just

OT: if that situation happens does that effect how you think on the Friday

D3: mmm it can do yeah... yeah it can do it can kinda make it if its good it helps to make me think positive more often on the Friday kinda more positive on the Friday (mmm) but if its kinda crap or whatever then erm... it does bring the negative out more you know the doubts and the worry you know I'd think about then more often so I suppose subconsciously it does yeah... yeah it does have an effect

OT: ok... ok what about in terms of closer to the game the sort of meetin at **** or if we're away meetin where ever in the hotel or in the changing rooms when Stovsie does his little chat does that have any effect on the frequency of the thoughts

D3: meetin everybody (yeah) is good is a good thing for me (right ok) it gets me like you know everybody's here it's a team thing and the pressure kinda goes off me a little bit (yeah) I get nervous when Stovsie does his does his team talk but that's again because I'm quiet and I can think about things (right) a bit too much (yeah) erm but apart from that ... no

OT: what about into the warm up.. do things start to go away or are you still thinkin about things in the warm up

D3: still thinkin about things in the warm up yeah definitely still thinkin about things in the warm up

OT: right cos some people start the warm up and think right that's it I'm in bosh off I go (no) and some people still going through

D3: definitely still going through it all till we get together in the huddle before we start (right) that's when I can really focus in on right I'm playin now it starts I'm not thinking negative thoughts I'm playin

OT: ok... ok and again if those negative thoughts are increasing in frequency as the game gets closer do you do anything to overcome the negative thoughts

D3: erm just try and think about the good games that that I've had (yeah) erm... that's about it really but it depends whether we well on the Friday it depends whether I'm home or away like if I'm at home I tend to worry about it a bit more cos I'm on my own where as if I'm with everyone else (mmm) not that I'm saying *** a bad thing for me (both laugh) I'm not sayin that bless him erm but obviously when I'm with everybody else its better for me (yeah) I can feel that that I'm better... like the few times that I've stayed at **** I can feel that I'm better than more positive**

OT: yeah I think you tend to get a better team atmosphere when everybody's away away as well (yeah) cos it's a close

D3: yeah I would agree...definitely I think it pulls everybody together
OT: erm what about do you... if we're talking about that sort of reliving your past performances and stuff like that again is that something that you see that you go through

D3: mmm yeah I try and picture the passes and picture the goals that I haven't scored very many of but I try and picture them erm (yeah) yeah

OT: how... and can you control that

D3: not really no.. (how do) they kinda come in and then they kinda go away (in what way) ... erm the negatives come in an and I just think about this weekend whether I can do it this weekend you know (right) cos even though I did it when ever it doesn't mean to say I can do it now do it then

OT: ok...ok so... would actually you goin through that process would that cause the negative thoughts to go away then

D3: not necessarily no

OT: what does it cause them to do then

D3: just kinda linger (laughs) (both laugh) no you mean thinkin about the positive things (yeah) things about the good games (yeah) yeah it does but not really... but they don't go away I don't suddenly think you know yeah I'm fine I can think all positive now it doesn't happen like that at all

OT: ok... that's fine... how do you think that sort of increase in negative thoughts affects your preparation for the games and affects you actual performance

D3: it can effect it can effect... erm I don't so much I don't know really erm... it can affect the game yeah it can affect my game because I don't start off confident (right) I think it's the confidence that it affects that I kinda struggle with you know (right) I find like if I have lots of negative thoughts then I'm not confident and I don't... erm.. I don't start off confident which can affect the game cos I don't want it and I do want the ball all the time but (yeah) but I know that I don't want as much as I can you know

OT: ok...ok what about the feelins...does the amount of time that you experience the frequency with which they occur change as the games gets closer

D3: mmmm definitely

OT: in what way

D3: the like the butterflies (butterflies) and all that (yeah the sickiness heavy legged) well they definitely increase get more often by the the closer the game comes

OT: what do you think causes those to increase

D3: the closer the game basically... the closer it is I mean the... definitely the more often I feel them... like I haven't really got any any tonight (no) cos I've got trainin... but tomorrow night cos I'm staying at home... I'll be at home (yeah and I'll be packing my kit and I'll be thinkin about it and I'll get really nervous

OT: ok... what about in terms of the closer you get to the game again we talked about maybe coming to **** or seeing all the girls or goin into the changin rooms does that trigger things in anyway

D3: erm... the drive up if I'm on my own... oh god all sorts can go through my head... it can be quite negative erm but then seeing everybody (mmm) brings out more positives brings out the positives (yeah) just being with everybody really (right yeah) you know havin a laugh and enjoying it and you know we're in it together then kinda thing

D3: yeah... ok....and would you do anything to try and overcome those negative feelings the frequency of those

D3: erm... ** very good... I would go and talk to **** (yeah) she's very good she convinces me that I'm yeah she convinces me that I'm good if I go and talk to ***** (yeah) and erm I don't know some of the others really I don't know like ***** can talk to me about the game (mmm) and that kinda thing and then there's others that make me kinda laugh and enjoy it like ***** erm... and like the others as well**

OT: can you not create that yourself do anythin internally

D3: no... no I can't... apart from maybe see the images like I said earlier... but even that doesn't work cos all the negative ones push in you know

OT: but talkin to other people can... talkin to other people and bein around them

D3: yeah... it can act as a distraction... takes me away from them

OT: ok... ok... and doin things like that does it just cause the negative feelin's to go away or does it just put them

D3: puts them to the back burner... I have them less often... they don't go away cos when I erm... like when Stovsie does his talk and I've got time to think and things like that that's when they creep back in

OT: so may be you can never put them to bed

D3: no no no never there always there in the back of my mind... there just less often or not as much you know

OT: Ok... Ok that pretty much brings us to a close ***** we just have the final section to go through section six... is just a verification bit in terms of how the interview has gone (yeah yeah) ... so firstly are there any areas that you think we have failed to cover about how you prepare for the game

D3: erm.. nope no I don't think so

OT: anything else that you want to add about how you react either positively or negatively in the time leading up to the game or for the game itself on the day

D3: nope... nope I don't think so

OT: have I led or influenced your answers in any way away form the things that you wanted to get across

D3: no... nope

OT: do you think the interview could be improved

D3: erm... no... no I think you've done it well

OT: what about what about the content of it do do you think there's anything that could be in there that isn't there or is there some things in there that don't need to be in there

D3: no I think you kinda cover every aspect of preparation (mmm) yeah no its good

OT: ok ok... what about is there anything else you wanna add before we press stop

D3: erm... no no

OT: ok... ok thank you for taking part in the interview

Interview Transcript Example - Facilitator (Subject: F2)

OT: Right... the first section deals with which you utilise your time as the game gets closer so to start off with just to get us into the swing of things just basically want you to set the scene on how you usually prepare for a match... so if we start by I'll try and put things in perspective of the week leading up to the game so if... start by giving me a run through of your normal weekly routine and the things that you do that link in or effect effect your performance on a Saturday...

F2: erm... training everyday and fitness and stuff (yeah... what sort of stuff do you do for that) running on Monday (right) weights on a Tuesday (yeah) running again on a Wednesday trainin on Thursday another little run on a Friday or a Swim (right) and then its it's the game on the Saturday

OT: ok... ok so that's pretty structured there (yeah) who structures that for you then

F2: England do that it's a general programme they give to everybody who's in the squad

OT: do you make an active decision to taper it down on the Friday

F2: no its just an active recovery really (right) just a light 20 minute swim or 20 min run or something (right) and that's all its not as intense

OT: ok... erm what about in terms you work or the studying that you do or your social patterns... do they effect your preparation in any way

F2: no (laughs) I don't really have a social life apart from hockey (laughs) erm... got a lot of work on at the moment though and that effects it a bit... it effects like may be on the Friday I sometimes don't get to do the active recovery (right) cos sort of like Monday Tuesday Wednesday are the main fitness things and then Friday is major work study work (right) so that's gotta be squeezed in there

OT: does that effect in any way erm... your sort of preparation for the game

F2: for the Saturday (or the Sunday as it is at the moment as well) yeah.... erm it probably does but I'm just like I'll be doin some work and then I will think about the game I'll just stop and think like what happened last week... what happened to me like in other games with *** before I joined ***** as well and just like thinkin about the game what my job within the team is Yeah and then work stops (laughs)**

OT: does that thinkin about it then effect your work... is it a two way thing

F2: no no

OT: no... no good... what about in terms of a sort of pre-performance plan or a pre-performance routine do you have like a routine that you like to follow before the game and again this can be sort of getting a week away from the match or it can be closer to the game a sort of routine that you go through in terms of... you've already mentioned your trainin times and stuff like that (yeah) what about sort of packing your kit and goin through a routine do do you do that at all

F2: erm... not really... I just obviously when I'm packing my kit and everything I'm just sort of really thinkin about the game but cos I've never played these teams

before and I'm just kinda like sometimes craping myself and like what the hells gonna happen... no like ... I just can not really expect anything I don't know if that's the right word (mmm) I sort of like take it as it comes I'm not really (right) thinkin about I'm only really thinkin about my game I'm not thinkin about oh yeah that happened last time we played these cos I don't know (yeah yeah) so I'm just hoping for the best

OT: what about in terms of erm... when you sort of do you have a set routine like you like to leave the house by x to get to ****** for or

F2: erm... I just usually I usually pack my stuff on a Friday night like my kit and erm say if we're playing at home erm my parents or I'd meet **** in ***** and then we'd just come down but nothing really set**

OT: no... (no).... what about when you get sort of a little bit closer to the game when you've (yeah) arrived at the club

F2: quiet time (yeah) I find myself I go quiet

OT: what's the sort of routine that you like to go through once you've got to ******

F2: erm... well obviously we go into the bar (mmm) and then erm I don't say a lot there or up in the changing everyone's chattin but I just usually just usually get my kit on and then just sit there and just think about the game (mmm) and then *** comes in**

OT: so you just sort of collecting your thoughts together there (yeah) you like to be in your own space cos there's some people that like to chat and chat and chat (and I can tell you there names as well) I know who they are (both laugh) and there's some people that don't some people just like to sit there be quiet in their own space... what about in terms of that pre performance stuff there do you have any sort of mental skills that you try to bring into that routine

F2: I just this probably seems quite wired but I just imagine the ball going in the back of the net that's.... that's all I want to do really just so yeah I just find that a major like when I've come to ** obviously (yeah) I spoke to ***** on the phone before and he saying you know we are having trouble scoring goals and I feel that one of my major things (mmm) is trying you know to get into the team and stuff and score goals**

OT: how do you go through that sort of process then what goes on

F2: erm... I just think back to all just to other games and to trainin sessions and how sort of like you know how I can actually put the ball in the back of the net you know visualise (yeah) but nothin major just

OT: what what are you seeing... do you see yourself or

F2: yeah... mainly myself erm team mates mostly ** (yeah yeah) workin with **** and ***** and ****

OT: what with you scoring on the end of it

F2: yeah yeah (laughs)

OT: do you see that in terms of sort of like if you put it in perspective where your looking at yourself from the outside like on a TV or do you see it in terms of how you would see it with your own eyes from within your own body... do you like look at it as a TV screen or se it from you

F2: see it from me (yeah)

OT: what sort of... are you in control of those situations that you can see

F2: Yes... I think so

OT: when would you go through that sort of process then

F2: erm... all the time (yeah) yeah and mainly in that quiet time in the changing rooms just sort of like just picture stuff that could happen in the game and see it happening in the game (yeah) but yeah just I don't know all the time really as well I just think hockey eat sleep hockey

OT: so you'd go through that sort of process even away from hockey

F2: yeah probably... sort of when I get a quiet moment as well away from the game or whatever (all the time leading up to the game or is it when you get a quite moment) yeah a quiet moment yeah sort of on the wednesday, thursday and friday

OT: what about if we start to think about the sort of thoughts and that you have towards the game on a Saturday is there is there a point in time when your thoughts really start to turn towards the game

F2: probably the.. it it it'd start Friday night (right) probably as I'm getting to as I'm laying there and thinking about it but it gets starts majorly thinking about it on the Saturday morning

OT: ok... but would you have thoughts throughout the week about it or is it just that they increase at those times

F2: I'd probably I probably wouldn't have it Monday Tuesday cos I would still be thinkin about the game that's just gone still thinkin about that one (mmm) but Wednesday erm... its quite weird cos I think I'm still set in we train on a Thursday and at **** it was a Wednesday (right) and sort of I got into that time and that you know training Wednesday and sort of like think about the game for Saturday but now its Thursday (yeah) but I find myself thinking about trainin and the game on the Thursday (mmm) so and then that transfers into Friday as well**

OT: what about how does that trainin effect your thoughts then does that make you

F2: erm trainin I probably just focus on trainin (right) and not on the game (mmm) cos I feel myself I've still got to prove myself in trainin with (right) being one of the new people and stuff so I just concentrate on training on that Thursday night and then Thursday night and all day Friday (yeah) its game

OT: so you'd concentrate your thoughts on trainin and then after that turn them to the game... does... if it's a particularly important match or particularly important game or would does that effect in any way when when you start to think about it at all

F2: erm... probably if... I mean we're playing ******* and ********** and there top of the league and I don't think anyone expects us to win but I mean last week ********* there quite close to us (mmm) so in the league so I think everyone was you know we've got a really good chance of winning here and those kinda games like *****..... ******** ..... ******** there all close to us I think I probably think more about them because we're expected to you know pull off something quite good against them so I'd (right) probably start thinking about them earlier than the other ones (right) but I don't know because I still only I still think about you know the ******** matches and this weekend matches quite early cos like I haven't played them before (mmm) and I don't know what its like (yeah)**

OT: that sometimes a good thing isn't it (yeah) though cos (yeah) you can just go in there (yeah) nice and relaxed nice and chilled no expectation (yeah) not got anything to refer to (yeah yeah) that sorts of the preparation section out of the way... the second section deals a little bit more specifically with the thoughts and feelings that you tend to have as the games gets a little bit closer (right) so we'll get into things into a little bit more detail (right) this is where you might want to refer to the to the thoughts and feelings list that you did earlier... so again if you want to use that as a point of reference do so (right ok) erm... what I'm really interested about is the sort of symptoms that you tend to experience and by that I mean the mental thoughts things that go through your head that you tend to experience (yeah) and then we'll talk about the physical feelings that you might experience as well sometimes players
get those close to the game and sometimes they don't but we'll start off by going through everything to do with the thoughts first the mental side and then we'll move on and do the feelings physical bit and keep them keep them (ok.. ok) separate... so what what are the sort of thoughts the things that run through your head that you tend to the actual things that you tend to think about as the game gets nearer

F2: erm... am I gonna play shit or am I gonna play good (mmm) erm... I just look forward to the game (yeah) and just sort of like you know I'm quite excited (yeah) I don't really get nervous (right) I just tend to get excited butterflies in the stomach (mmm) and but nothin really nervous

OT: ok... ok... what about sort of confidence and stuff like that

F2: probably depending on how trainin went (right) on the Thursday (right) if I had a good trainin session then I'd probably feel confident (mmm) erm... it all depends if I enjoyed the training as well (right ok) like I mean there's a couple I think it was last week or somethin I didn't really enjoy it enjoy the trainin I don't know why it just didn't... flow

OT: so that's the important bit then is it enjoyment (mmm) of trainin is it

F2: yeah... yeah

OT: ok... ok... if we just focus on those thoughts then when do they start to occur really as the game gets closer... (erm) when do they become more noticeable to you if you like

F2: erm... probably Thursday (right yeah) when erm... when I get home from college I think oh god yeah I've got trainin tonight and then suddenly its like oh my god we're playin so and so on Saturday or Sunday and then you know all the sort of you like erm... have I got my kit (mmm) you know where am I meetin who am I meetin with just probably Thursday and erm... I don't know I guess I mainly focus on trainin on Thursday

OT: yeah but would that trigger those sort of thoughts leading to the weekend

F2: yeah yeah

OT: ok... what about erm... sort of do you put any pressures on yourself or anything like that do you...

F2: erm... I don't know erm... I don't really I just try and do... my goal is to just you know do my best (mmm) obviously try new things because erm... I don't know I've just gotta keep going cos obviously *** is still lookin at the way I play and everything and (yeah) but I don't I don't put that much well I try not to put that much pressure on**

OT: is it more important to you to enjoy it or

F2: probably at this stage yes (yeah) because everything I mean *** said you know just enjoy it Jo (yeah) make sure you enjoy it (yeah) you know its just I mean he had a chat with me before the ****** game and he said you know I'm gonna start you and I want you to do this and that but then he ended the conversation with just enjoy it (yeah) and I think that's my main goal my main thing I want to enjoy it but obviously I wanna win (mmm) I wanna do everything I can to win but to enjoy it**

OT: ok.. ok what about any pressures coming externally do you feel any pressure coming externally

F2: some (and what are they) erm... I don't know I here other conversations amongst the squad and (yeah yeah) erm... I don't know its just I don't know I suppose I shouldn't say names (no its fine everything's confidential so don't worry about that) ***** she sort of like I mean I guess it was a nice thing but it kinda sort of like put a bit of pressure on me as well because erm against when we played ******** she said oh we did so and so this thing last time when we played them and you know they caught us out on it so she wanted me to make sure that that didn't happen and really I didn't she didn't explain it very much (mmm) and that sort of like put a bit of pressure on me cos I'm doin something that I'm not really that sure about (yeah yeah) and that erm that erm put a bit of pressure on me which made me think**

OT: how did you deal with deal with that

F2: I just tried to do my best... I mean she chats to me through the game anyway (yeah) so it turned out alright in the end really

OT: what were you thinkin then there

F2: erm well I'm capable yeah... just try and do it (yeah) I can do it if it pulls off if it comes off great (yeah) if it doesn't just keep workin at it

OT: ok... erm what about sort of if we concentrate on the thoughts do they change as the game moves closer in terms of the level that you experience does the amount of them change as the game gets nearer

F2: erm... to be honest I'm probably more more nervous... no not nervous more excited butterflies in the stomach before before we get on the pitch and warm up when I'm on the pitch and warming up I'm fine (yeah) its its quite wired to be honest because Saturday mornin or Sunday if we're playing Sunday (yeah yeah) erm... am

really sort of like I don't know I try to calm down I've just gotta keep goin and (yeah) and erm.. on the way like if we're playing at ****** erm.. I'd have butterflies all the way there (mmm) but I mean if we were travelling down like to ******** I would I was fine but as soon as we got to the hotel on that on the Friday night butterflies came but as soon as I'm on the pitch (yeah) it just goes**

OT: yeah they'd go away but they'd increase to that time

F2: yeah oh yeah

OT: what do you think causes them to change as the game gets closer what do you think causes that increase

F2: erm... I don't know I think just I think I'm just anxious to get it all over and done with really (right) sort of like I wanna get there get on the pitch and then when I'm on the pitch I'm sort of like it's a better feelin sort of like you know I'm more relaxed there really (yeah) I'm sort of like confident in myself I know what I have to do but just getting there getting it on and want to get on with it (yeah)

OT: but you'd consider that those those sort of thoughts and feelings they sort of like a process over time (yeah) ... they change

F2: yeah yeah oh yeah

OT: what about the sort of physical feelings lets just focus on those for a while... we've mentioned butterflies are there any other sort of physical feelings that you experience

F2: no there isn't really just butterflies the excitement (yeah) and that's it really

OT: do you get tension I don't know or anything like that

F2: no... (no) no

OT: you've mentioned relaxed relaxation is that a sort of state that you like to try and get yourself into

F2: yes... (right) I think if I'm more relaxed I feel more easy about the game (mmm) so...

OT: right ok... how do you go about getting yourself into what sort of things are you doin to get yourself into that relaxed

F2: if I feel like that i just to try and get relaxed... (yeah) erm... I get relaxed and that focus' me they just suddenly go and everything (mmm) I suppose just relaxing... breathing and thinking focus you know... they just go the butterflies the thoughts and everythin (yeah) and then I'm just suddenly I guess I just feel more relaxed and more confident when I'm actually on the pitch with a stick in my hand (laughs)

OT: ok... ok what about sort of previous do you ever sort of listen to music or focus on your breathin or

F2: erm... not really I tend to probably I don't know I listen to music that gets me really really fired up for the game (right) and that probably gets me nervous (right) but erm... I've never tried to get myself relaxed before I actually pick up a stick (mmm) I just well I suppose I've tried but I just I think it just makes me more have

more butterflies and excited (yeah yeah) so its never I can't do it I can't get myself relaxed until I'm on the pitch

OT: yeah but if you see those butterflies as excitement then that's may be not a bad thing (yeah yeah)... what about those those sort of feelings again is there a specific time when they start to occur when they become more noticeable to you

F2: erm... in the car on the way to ** (right right) erm... yeah that's when the when there the most notable cos I just wanna get there (yeah) especially when *** driving cos she drives slow (laughs) its not too bad with *** cos she's a bit more speedy but when its *** it's a killer it's a killer my stomachs in churns when *** driving**

OT: what about in terms of when you actually drive through the gate or arrive at the club does that have any effect

F2: yeah... they sort of like just have a mad rush in my stomach (yeah) and then that's there for about a couple of minutes and then its its ok its not as bad once we're in the clubhouse and the girls are there... yeah

OT: and then what about as you go to the changing room and stuff like that

F2: erm... still there still there but not as major (yeah) I guess that's when there winding down really (mmm) cos I but when ***** does the team talk I guess I get more excited more butterflies get more intense again but then onto the pitch gone**

OT: ok... ok that's fine is it do you think in that sort of familiar environment effects it in any way

F2: erm... I don't think so

OT: ok... ok... and again what do you thing causes the physical feelings what do you think triggers them off

F2: erm... I don't know I don't know... just my thoughts about the game I guess (mmm) music possibly if there's a good tune on (laughs) I like to listen to it yeah

OT: I suppose we've mentioned them in a way sort of driving through the gate and stuff like that.. that kinda triggering them off in a way

F2: yeah... yeah because its weird cos erm... in a if I here a good a good tune that's probably you know and I suddenly think about the game it might have been Monday Tuesday so early before the game and still get butterflies about it (yeah right) and its as soon as the songs finished they'll go.. so music is probably a thing that triggers me off as well

OT: right.. do you make a conscious effort to listen to certain music before the game or

F2: yeah on a on a Friday or a Saturday mornin (mmm) yeah I'll listen to some decent tunes yeah

OT: what's the reason behind that

F2: I don't know probably just gets me fired up really (yeah) erm... yeah I don't know I guess they probably seem to help me think a bit as well just listening to it

and then I just visualise stuff... hopefully what's gonna happen in the game (mmm) but I don't know it helps if it's a good tune

OT: ok... ok... I'd just like to focus now on the negative thoughts we've not got many to focus on (no) cos your pretty positive and excited and confident and stuff like that.. we've talked about it a little bit but the sort of butterflies and we've mentioned getting a bit nervous do do do you have any strategies that you sort of use think oh god I'm getting a bit nervous now I can feel the butterflies kickin in do you have anything that you try and do to to take those away or are you happy that there there and you can cope with them or

F2: I tend to cope with them.. like and I can do soething about them

OT: how do you go about doing that what is the process that you go through

F2: erm... I don't know I suppose breathing does come into it a bit now I think about it... just try and calm myself down (mmm) erm... but nothing major

OT: and how do you get yourself to into that calming downess then how do you do that

F2: erm... not a lot really I don't think its more focusing on the breathing I think.. being quiet and calm in the changing room

OT: what about do you set yourself goals for the games or for the season or

F2: probably goals for the games... just try and put one in the back of the net (mmm) or erm... when I get on just just do the simple stuff really just play and play my normal game

OT: are you telling yourself those sort of things before the match

F2: yeah yeah I suppose I am (yeah) just do what you know best and just go for it.. nothing to loose (mmm)

OT: what about in terms of focusin do you tend to focus on things that you can look after that you can control or are you getting away from that focusing on the position and the outcome of the game what are your sort of focus's

F2: erm... I don't know I don't know Owen

OT: ok... ok we've already mentioned sort of the imagery process and things like that that's a good process to get into... what about if you sort of experiencing the negative thoughts do you try and turn those around

F2: yeah probably yeah erm... to be honest I don't really you know I try to stay positive I don't I really don't think of many negative things I'm kinda a positive person (yeah yeah) erm... I can't really think of any negative stuff that I think of before the game

OT: ok... ok then what do you try and do then that keeps you positive that keeps you in that positive frame of mind

F2: erm... just think you know we are gonna play well... erm... I think back to past performances I suppose but that even happens in the game as well though you know if something hasn't if somethin doesn't come off I usually think back to things that you know that will come off for me and just try and do those things and try and

stay positive or even if it doesn't come off try it again and tell myself to do that (mmm) erm... but I don't know

OT: is that sort of a process that you go through (yeah) and tell yourself that (yeah) would you do that before the game as well or

F2: probably before a game but probably I'll always just say to myself you know if something doesn't come off try it again and that does happen in the game as well cos that'll happen and it'll happen before a game as well

OT: ok does that do you do that sort of thing in trainin as well or

F2: erm... well I I feel that there's.. in trainin that's the time to practice that stuff (yeah) erm.. so erm... that's when I when I mainly try probably try the stuff that I wouldn't do in a game (yeah) and se if I can bring that into my game... if that makes any sense

OT: yeah that's what trainins there for really... that's the environment to try your little tricks and see what happens with them... (yeah) do you try things in a game that maybe you haven't tried in trainin if things are going well or

F2: yeah... yeah

OT: ok... what about if we focus on that's negative thoughts if we focus on the negative feelings.. do you again we've talked about the butterflies don't really get any tension or anything like that (yeah) do you use anything to control the butterflies

F2: erm... not really I can cope with them and control them... there like excitement a bit I suppose... sometimes if they get really bad I do just tend to go quiet just concentrate breathing really but I just tend to erm... maybe probably if being quiet if that doesn't help then I'll usually talk to somebody about probably not about the game (mmm) probably if you know if we're getting if we're getting changed or something and that's the time when you know people are chattin about anything or last night or somethin then I'll probably just try and come away from the game (yeah) a bit and see if that helps (yeah)

OT: and why do you tend to do that do you think just take yourself away like that

F2: erm... probably because I can't handle the butterflies if they get that bad (does that help you handle them) yeah they ease off a bit and erm... just sometimes I do get I get them very early like I said in the car (mmm) then they'll ease off once we're in the clubhouse but then if for certain games they do come fairly early and I do get my nerves for too long and I just try to come away from thinkin about the game for five minutes (mmm) relax and get them under control

OT: what about in the car on the way down... if do you do anything in the car on the way down to sort of like

F2: I think that's my main time to really get up for the game (yeah) and that's when the music's on and everything (yeah) erm... I don't know I guess my pattern is in the car really up for it just chill out a bit with the girls when I get to the club and then in the changing rooms just get up for it again I suppose they just come on and off I suppose the excitement and the butterflies and stuff I think there an absolute killer the butterflies on the way in the the car cos I'm excited.. but I can control them and

then they ease off and then in the changing room their there but again I know that I can deal with it but then they go as soon as I'm walking out on the pitch anyway

OT: do you tell yourself that there gonna go when you walk out onto the pitch and stuff like that cos you know

F2: I haven't really thought about that.. I suppose I do just talk to myself and they just tend to tend to go (mmm)

OT: Do you sometimes find that though when you cross the white line or what ever start warming up do the physical part of the sport (mmm) that that's like oh that's it I'm in there now (yeah) I'm playin the game I'm happy (yeah) it's the anticipation bit that's the killer (mmm) so if you can do things to control them in that time it just means that your not wasting the nervous energy and stuff like that (yeah) cos some people do that so on edge and jittery and think about things so much that (right)... that's if they can control them in that time then its better... ok if we talk about the positive ones for a bit now we've got sot of excited confident looking forward to it enjoying things... is there anything that you try and do to stimulate those thoughts

F2: erm... I don't know really erm... they just tend to appear do these thoughts erm... I don't know probably trainin (mmm) thinking that you know I've gotta go to trainin and erm sometimes I'd even get excited for that cos like if we had a really good trainin session the previous week and we've had quite a good game on the weekend (yeah) obviously your lookin forward to the next game the nest trainin session and em erm.. enjoy that and then erm... and then the game comes and I don't know... I just tend to you know on Friday just go into this major thinkin of the game (right) I don't know what I don't know what sets it off just

OT: but there always positive things... are you looking forward or are you looking back to things that you've previously done

F2: erm... yeah I do tend to look back at something's and say oh that was good you know lets do it again lets try it again (mmm) see if it comes off again (mmm) erm... so that's a positive thing for me I tend to look back at a lot of a lot of good games that I've had (right) and try an you know keep doin that

OT: ok...ok do you tend to look back at those away from the hockey like before you go trainin or even when your doin your fitness stuff to keep you goin or

F2: erm yeah... erm... I know I think because I'm trainin everyday for hockey I don't really get away from thinking about (mmm) the game and so I think its only when I sleep I get away from it ... I think its because I live it so much when I'm awake (mmm) I don't think oh (Phone rings break in interview)

OT: So you tend to use things that are maybe associated with past successful performances and things like that (yeah) would you use any of your sort of England stuff or anything like that... do you focus on that in terms of I'm capable at this level and all that what sort of things are you running through there

F2: erm... I don't know really I just... I don't know I just tend to think about just a load of stuff whole games all the games I've played and just try and remember all the good stuff (mmm) mainly erm... I don't know I tend to forget the bad things (yeah is that what you try and do) yes... but I mean I think if erm... I think my main my main thing is if something's bad you try and turn it into a positive (mmm) erm... and that's what I try and do

OT: and how do you go about trying to do that

F2: erm... (give me an example) like if... you know something's been going well in that game (yeah) like if the teams not playing well or I'm not playing well erm.. you know I just tend to keep on goin and then if something suddenly comes off for me I tend to just think right I've got that I've got my head around I'm sorted to this game now and I don't know things just tend to come off from there (mmm) but then sometimes then you know the next thing I do is a right shocker you know and it comes back to me and it's a bit topsy turvey but you know I just keep goin (mmm)

OT: are you tellin yourself that as well (yeah) yeah (yeah just keep goin and it'll come off in the end) ok... ok finally for that section we've talked about negative and positive thoughts and feelings that you tend to have which which do you tend to focus on the most do you think

F2: out of positive and negative (mmm)... positive

OT: that's fine... this next bit deals with the way in which you tend to interpret things like.. we've kinda got into it in a little bit of a sense and skimmed over it but the sort of nerves and butterflies they would be like if you like traditionally they are classified as negative things but some... people do interpret them in a positive way like we've talked about you associating the butterflies with excitement (yeah) not like with anxiety or nerves so I just want to get into that in a little bit more detail (mmm) so if we concentrate on the thoughts to start off with so... the negative thoughts that tend to go through how do how do you interpret those... do you tend to see them as positive or negative towards your performance

F2: erm... probably positive erm... I guess on a Saturday mornin I very rarely think negative stuff I'm always always always thinkin you know I'm gonna do this (mmm) you know the teams you know gonna play well look at the strengths we have you know I do positive all the time really

OT: what do you think causes that positive focus do you think

F2: erm... I don't know I don't know what causes it to be positive just that I'm capable of doin it I suppose

OT: do you feel that you make a choice to focus on those things

F2: erm... I don't know erm... not a choice I don't think I just think that I'm a totally positive person and (yeah yeah) erm I just believe in my ability erm... sometimes I do you know worry about you know I can't even stop a ball (laughs) and I really do get oh my god I'm having one of those days and sometimes I do get negative thoughts in but mainly its just positive all the way erm those negative ones don't stay around for long... mainly positive really

OT: ok... ok... what about would you ever interpret one thing as positive and then maybe it flip to be a negative interpretation or would your butterflies always a positive thing nerves always a positive thing

F2: I'd say the butterflies would always be a positive thing (mmm) cos I'm always lookin forward to the game erm whether I feel as though we're gonna get trounced or whatever you know (mmm) we couldn't you know we could win the game (yeah) erm I have found myself thinkin erm you know a positive thing and then suddenly thinkin oh maybe that's not so good and don't ask don't ask me to give an example

because I can't (both laugh) I'm really trying to think of one erm... I don't know I was goin to give a really lame one then but

OT: but does it come down to a control thing like controlling your thoughts

F2: probably erm... I don't know I don't know if I do think so much positive things some of them have got to be negative may be I don't know

OT: it's the way and what you focus on in that situation though

F2: yeah... yeah well that's it I'll always try and focus on the positive ones I suppose

OT: ok ok.. do you have anything that you try and do to sort of keep that positive interpretation what's the focus that you tend to have

F2: erm... I don't know cos I think if I think of somethin positive I tend to just try you know keep it in the back of my head (mmm) throughout the Saturday really erm... and if I can add something too it I would to make it an even better (yeah) positive thought but I just tend to keep those in the back of my mind and just think about (yeah) those and stuff about the game and keep it there

OT: would you do that as well as the imagery stuff or is that when your nice and quiet and your not really

F2: probably when I'm nice and quiet (yeah) you know just think about think about you know puttin the ball in the back of the net and just keeping that vision in the back of my head and the thoughts and feelins and stuff and just keep it all in there (mmm) and just keep it ticking over (yeah)

OT: and again do you go through that process in the time leading up to the game or are there certain times when you do that more or

F2: erm ... I think when we're in the changing room a hell of a lot goes through my head its mainly all I the cos that's when erm most people are just concentrate on the game I mean I've said the odd time I do not talk about the game a lot its mainly I mainly think about the game I don't know people prepare themselves in different ways but I that time I mainly be running things through in my head

OT: but if you've got that positive focus though do you find it easy to think about what going to happen

F2: yeah yeah I suppose so its not like worry or anything

OT: what about the sort of negative feelings if you like we've talked about the thoughts if we focus on the butterflies do you see so you see those as a positive thing

F2: the butterflies erm... yes (in what way) erm I suppose it's the excitement thing I don't know they just appear do the butterflies and is when I'm in a situation when I'm looking forward to something and when I'm not when I'm not I don't know cos right I was I was down and going for an interview at this college the other it was Wednesday and I got butterflies but I wasn't excited I was nervous then (mmm) I wasn't lookin forward to it at all but its not like that for hockey but I guess they do happen you know both when I'm lookin forward to something and when I'm not

(yeah) but when its when its hockey it is excitement I'm never really nervous that's weird is that int it (its good well for your hockey its good) (both laugh)

OT: so you'd see those as an excitement thing er a like readiness to go out there play (yeah mmm) do you use them as that sort of sign

F2: yeah... and you know another thing when when I wasn't lookin forward to that interview I got all shacks you know like you were really cold and you know you shake (mmm) but that doesn't happen for hockey its never happened for hockey

OT: why do you think the difference is there between the two

F2: erm... I don't know I guess you know that shaking is probably my body is tense cos I don't want to do something (mmm) erm... and that's not the case for hockey... i wanna be there its what I'm best at you know... yeah I suppose cos I really back my hockey ability but I didn't back my interview skills (laughs) yeah but for that I did get very nervous and suddenly went all cold and shivery and shaky and have you ever got your muscles twitched (yeah) that's horrible I hate that that happened (but that doesn't happen for hockey) no never never

OT: and why do think it doesn't

F2: I don't know really.... in fact I did have the shakes and I wasn't nervous at all about the game I think it was my very first game the *** match for ***** (mmm) I think I didn't feel nervous but I did it wasn't cold that day either (no) but I did you know get all nerv erm shaky but still the butterflies were there**

OT: how did you deal with that

F2: I suppose by just doin what i normally do... looking back to previous times when i've played well... seein some good performances and tellin myself this is what i'm good at... like I said earlier breathing and relaxing which i suppose just calmed me down a bit and I just do what I do now what I'd done before (yeah) just focus on the game and do my normal routine (yeah) but that was weird that was weird... but again I now know that I can deal with that which is good for me I suppose

OT: ok...ok... just to sort of sum that bit of the section up we've talked about whether you tend to interpret the thoughts and feeling as negative or positive... which way do you think you tend to focus on most... do you... how do do you think that sort of positive interpretation effects your performance.. do you think it's a good thing (yeah) do you think it's a bad thing

F2: its probably a good thing (how do you think it helps you) erm... if I.. I think if I stay positive... if I stay positive I think my whole game is better as soon as I think of something oh my god I'm never gonna get round that defender or you know or I'm never gonna be able to do that then I think my game goes erm (mmm) my self-confidence drops... if I suddenly start thinkin negative (right) so I guess that's why I think positive all the time

OT: how do you keep that positive positive goin then... what's the what's the key to keeping it goin

F2: just keep thinkin about erm... things have come off for me in previous games seein them at all that and erm... yeah just thinking about all the good things that I've done that could happen that will happen

OT: ok ok... that's fine... the last bit last bit deals with the frequency with which your thoughts and feelings occur as the game gets closer (right) so by frequency what I mean is the amount of time that you the frequency with which you find yourself thinking the thoughts or the frequency with which the feelings occur (right) as the game gets closer... so we'll focus on the thoughts again to start with erm... we'll just focus on negative thoughts to start off with although its not a massive issue (mmm) does the amount of time that you tend to spend thinkin those thoughts change as the game gets nearer

F2: erm... negative they probably increase towards the game (right) but I probably think a negative thought and then kinda get that out of my mind straight away (mmm) cos well that doesn't help (ok)

OT: how do you go about that process of gettin it

F2: gettin it outta my head erm turn it straight to a positive is probably the best way

OT: yeah are you sort of talkin that around or do you just discard it and think about something positive or

F2: erm... to be honest I haven't found myself talkin to anybody else... somtimes to myself or to really probably just thinkin.... visualising.... not really talkin to anybody more probably just within myself

OT: just basing on the visualisation of a positive performance what does that do to the negative thoughts
F2: it puts it in the bin for me really... (ok) it tends to go

OT: ok... that's fine... do you sort of like actively try and do that thought replacing type process... like where you think that's a negative thought I don't wanna think them

F2: erm... I have found myself doing that yeah sort of like I really don't want to talk about... as soon as I think about erm... a negative thing some I probably do think about more but I do try and you know clear them out of my head (mmm) and erm... think positive... replace it with a positive image see myself doin somethin good and it will go the negative will go

OT: ok... ok what about do they sort of cause your negative thoughts to decrease or do they totally get rid of them or are they to a level that your happy with you can control

F2: they probably go completely... erm... well no probably not completely erm... I probably find myself saying well not saying well not saying thinking really a positive thing and then a negative thing will sometimes result from that positive does that make sense (mmm) erm... erm... and then I have to replace that with a positive thought you know just to end on the positive that's how it works... once the negatives erm.. that I see have gone through my head and they do probably go... get that positive in there and focus on that

OT: so what do you think causes them to go

F2: probably an overload of positive things

OT: from what sort of process from seeing it from talking to yourself

F2: from seeing it really cos your visualising stuff that can happen in the game that has happened in previous games (ok)

OT: when do you sort of tend to go through that process is that something occurs all the way through the week or is it something that you just do close to the game or

F2: erm... I think... I think I see more negatives after Sunday Monday Tuesday after the weekends games or game (mmm) erm cos I can look back on my performance and look at some of the negatives that's come out of that and feel the disappointment or see the mistakes I've made try to make them positive so erm if something negative has happened in that I try and make it positive for the next game (right) erm.. my you know for certain skills if it didn't come off or something like that you know just try and make it come off in the next game... or go back to where I have done it... see a time where I have done the skill or whatever and its come off... then I'll think to myself yeah I can do it... I have the skill I've done it before you know

OT: yeah

F2: its like a keep goin don't give up try it on Thursday and see what happens

OT: ok... ok... what about the sort of negative feelings does the amount of time that you spend experiencing negative feelings change as the game gets nearer... the frequency with which they occur

F2: I think they increase nearer the game... but I like to think positive stuff near the game and that helps to make them go but if they do come I just deal with em really (mmm) and just try and get rid of them and just concentrate on the positive stuff for the game

OT: what about the butterflies cos there a positive thing so your quite happy for them to

F2: yeah yeah...

OT: right ok... so are they a sort of sign of readiness

F2: erm... yeah sort of like in the build up there just sort of like a sign that sort of like c'mon lets just get on with it (mmm) erm... yeah but they do they mean different things like if I get em in the car erm I'm really up for it but I know I'm nowhere near playin (right) erm.. and they just sort of like get me excited for stuff that could happen in the game (mmm) you know visualising stuff and things that could happen in the game but when its sort of like in the changing room and ready to go **** doin his talk the butterflies are mainly to visualise stuff but also wanting to get out there and get on with it (yeah)... so they can mean different things the butterflies (yeah)**

OT: ok ok would you say there more positive close to the game

F2: yeah yes

OT: and what how do you cope with them in the car...what are you

F2: erm I think in the car erm... I tend to just come away form thinkin about the game a little bit (ok) I think it's a bit... if I do find myself thinkin about the game I think I'll probably fall down but I don't know it tend to just really really focus on the game in the car to ** (mmm) erm but conversation with ****** or ***** just you know just settles me down a bit something that's not about the game (yeah) which is probably**
good

OT: ok... ok... what about the sort of positive thoughts and feelings does the amount of time that you spend actually thinkin those thoughts or experiences those sort of positive feelings does that change as the game gets nearer

F2: erm... I do have a lot in that quite time in the changing room (yeah) but I just throughout the week I tend to think about a lot of stuff.. like when I'm trainin I think about previous games up and coming games (mmm) erm... and positive thoughts are there all the time really (right) but the positive thoughts on a Saturday are at the... there mainly stuff from previous game that I'm gonna try and put into the game on Saturday (mmm) erm... so... I guess there could be a few more on the actual game day on the Saturday (yeah)

OT: and again... you've kinda mentioned it there really the things that your doing to stimulate those

F2: yeah that would mainly be the visualisation (does that come down to specific skills as well or) yeah erm... I don't know

OT: but would they be about a range of skills or is there one just big skill that you think I love that I know I'm brilliant at that (erm) and I'll focus on that (yeah) or do do you just think about every every range of of every skill

F2: erm.. id o think about every range of skill but I tend to... bring back I tend to focus on goals I've scored that's a good (mmm) positive thing for me (mmm) cos erm... I love scoring goals (yeah)

OT: do you have a favourite

F2: it was a cracker Owen it was it was a right one.. it was my last game for **** (yeah) a reverse stick shot right-hand top corner lovely top of the D (yeah)**

OT: and do you play that back to yourself

F2: oh god yeah (yeah a favourite one) very favourite yeah

OT: is that the type of process you go through

F2: erm yeah I just... I visualise sort of the stuff I can remember from the goal like when I got the ball... cos it was an individual goal... erm yeah sort of like the run up to the goal when I got in the D... erm body position feeling that and sort of like I remember I sort of like remember the connection with the ball (yeah) which was a good one and feelin that and just remember everything really

OT: what it felt like to score

F2: yeah... its important to keep reliving it though (oh yeah) cos that means that its real mmm .... and that happens a lot on the Friday night I replay things like that... and on the Saturday (mmm) not just that goal other ones (right) other stuff as well

OT: good excellent... that just about brings us to a close really Jo (really... you should a seen that goal Owen... sorry) (both laugh) know that's great though its important that you relive those experiences cos that keeps your confidence goin (yeah) that keeps you in that positive frame of mind... the concluding section is just like a verification bit really... is there anything else that you think we failed to cover relating to how you prepare for the game

F2: no... no

OT: is there anything else you wanna add about in terms of what makes your react negatively or positively to the games or the matches

F2: nope

OT: have I led or influenced your answers away from the things that you wanted to get across

F2: nope

OT: do you think the interview could be improved in any way

F2: no

OT: ok good.... right... is there anything else you want to add before I press stop

F2: nope

OT: ok... ok thanks **** for taking part in the interview that was good

F2: no problems... I enjoyed it

NAME_____

PSYCHOLOGICAL SKILLS:-

An Introduction

This 'Introduction to psychological skills' booklet gives an insight into each of the psychological skills you will be using throughout all of the pre match phases. You will not use all of the skills at all of the pre match phases, some will be specific to certain phases and we will discuss this later. The skills covered in this booklet are:-

1) Imagery and Mental Rehearsal

2) Rationalisation/Restructuring of Negative Thoughts

3) Goal Setting

4) Self talk

Please read the following information on each of the psychological skills and then we will discuss any questions you may have prior to practising each of the skills.

Imagery and Mental Rehearsal

Imagery refers to a situation where players create or re-create a picture or sporting experience/situation in their mind. Most of the time this picture is centred around you as the performer where you can see yourself performing the task, however, many players also report that they can **'feel'** the movements associated with the image and even hear the **'noises'** that accompany the image.

Key Points

When seeing yourself perform when using imagery there are two different perspectives that you can use. You can see yourself performing from an **'internal'** perspective (i.e., seeing the image through your own eyes, from inside your own body as you perform) or from an **'external'** perspective (i.e., seeing the image from outside your own body as if watching yourself from the crowd or the perspective of a camera filming you). Other senses can also come into play when you are imaging, you may be aware of **'feelings'** (such as the feel of the ball hitting the stick) and **'noises'** (such as the ball smacking the backboard or the noise of the crowd) and in some cases **'smells'** (such as the smell of the stick grip on your hands). The more of these senses that you can bring to your imagery the more vivid your images will be.

The principles behind imagery are that it can help improve your performance and it is known as one of the most powerful psychological skills. Specifically, using imagery can help improve skill development, help to motivate you, help you overcome negative thoughts and feelings and help to build confidence. The reasons why imagery can help do these things come down to the belief that the more you rehearse a successful performance in your mind the more you teach yourself (both in mind and body) to be able to reproduce that image in real life sporting situations. You become more self

confident and less nervous as you have seen yourself playing successfully in the situations you have rehearsed.

When using imagery it is very important that you work on the ability to **'control'** the image and the thoughts and feelings that are associated with it as much as possible. Also it is important to create images that are **'clear'** and as **'vivid'** as possible. This obviously takes **'practice'**, the brain is like a muscle, stop training it and it will loose its efficiency, practice things regularly and it will only get stronger.

Imagery will be one of the major psychological skills you will use throughout your personal pre competition plan. However, the content and form of this imagery will vary depending on the phase of the pre competition plan you are in. We will create personal imagery scripts for each of the time phases before the game and recommended practice times for the specific imagery routine will be provided.

Rationalisation/Restructuring of Negative Thoughts

The rationalisation/restructuring of negative thoughts refers to a situation where players take any negative or irrational performance thoughts they have and change them around into productive or positive rational thoughts. This process can relate to both negative thoughts following matches or negative thoughts in the build up to an upcoming match or indeed in a match situation itself.

Key Points

They key principles of rationalisation/restructuring can help improve your performance by identifying and reducing undesirable thoughts. The reason for doing this is that negative thoughts can effect your performance in a negative way. Specifically, your thoughts determine how you are feeling, and in turn, how you are feeling goes a long way to determining what your behaviour will be, and behaviour for us in sport is your performance. Basically, if you think in a negative way you tend to feel physically negative, and if you feel physically and mentally negative before performing you are more likely to perform poorly.

Rationalisation/restructuring is a process that aims to identify these negative thoughts and provide you with the thought processes to restructure them or replace them. The idea being that if you restructure the thoughts to rational thoughts, or even replace them with positive ones you are thinking more positively, and if you are thinking more positively you feel more positive, which in turn will make your behaviour more positive, and remember that behaviour for us in sport is performance.

Rationalisation/restructuring will be one of the major psychological skills you will use throughout your personal pre competition plan. However, the content and form of the rationalisation/restructuring will vary depending on the phase of the pre competition plan you are in, and the negative thought(s) that you are experiencing at that time. We will create personal rationalisation/restructuring profiles for each of the time phases based on the negative thoughts you experience. These will be used combined with the psychological skill of self talk[1] to rationalise/restructure any post or pre performance negative thoughts you may have.

[1] See the self talk introduction for more information on the psychological skill of self talk

Goal Setting

Within many walks of life the vast majority of people set themselves targets to be accomplished on that particular day or within a particular period of time. This type of procedure helps them to be more effective within their particular job. In this regard, the world of sport is no different from any other aspect of life in that setting goals within sport has been shown to be a successful procedure to enhance performance and to motivate players. However, if done correctly goal setting is a great way to enhance your self confidence.

Key Points - GOAL CONTENT

Whatever the goal you set, there are a number of features that will make it more likely to be successful for you. The acronym **SMARTER** is used to describe the set elements for good goal setting. **SMARTER** stands for

Specific: make your goals specific, this ensures you know when you have achieved it and will generally make the goal easier to measure.

Measurable: make your goals measurable so you know how your progressing. This can sometimes be difficult but a good measure might be how a movement felt or whether you concentrated better

Accepted: make the goals acceptable to yourself and if needs be the coach, you have to accept the goals you set

Realistic: make the goals realistic, they should be difficult enough to challenge you but not completely unachievable. Goals that are too hard or easy to achieve are less effective than realistic difficult goals

Time phased: a goal will have more chance of being achieved if it is time phased. Goals should be broken down into short term (e.g., for the next game), intermediate (e.g., for the match in five weeks time), or long term (e.g., for the season).

Exciting: when the goal is achieved you should feel a sense of achievement or you should be excited at the prospect of achieving it

Recorded: write your goals down so you are clear about what you want to achieve. Also if they are recorded your progress against them can be evaluated

Key Points - <u>GOAL TYPE</u>

The type of goals that you can set for the upcoming competitive matches essentially falls into **three** categories

1) OUTCOME GOALS

Outcome goals are a target based on the result or outcome of the match. This type of goal is very easy to measure and therefore it is easy to decide whether you have achieved it or not. Outcome goals can act as a great motivator for players; however, as we discussed they can have associated problems. Outcome goals are not totally within your **'control'**. For example, the outcome of a game depends on the performance of the opposition and of course on the performance of your team mates. Therefore, achievement of an outcome goal is not solely down to **you**, it depends on the performance of others and you have **'no control'** over their performance. Therefore, setting **'only'** outcome goals is not advisable and we will set additional types of goals and tend not to focus on just outcome goals.

2) PERFORMANCE GOALS

Performance goals are where you compare yourself to some kind of absolute standard. This type of procedure can be quite difficult to do in an open team sport game like hockey. It is easy for example for athletes to compare their race time against their personal best time, or for a swimmer to set a time split goal for the first 50m of a 200m race. Unfortunately in hockey, we don't have a simple time, height, length or weight standard to compare our performance too. However, with some open thinking we can create performance based goals against absolute standards. For example, performance orientated goals for hockey could include

- To keep possession with 80% of passes
- To hit the target with 90% of shots
- To only concede a certain number of fouls per game
- How many times we should successfully complete a short corner routine

For each of these goals we can produce a standard that we can set performance goals against. Performance goals have the added advantage over outcome goals in that they are more under **'your control'**. The ideas is that if you set good performance goals they will feed into your outcome goal (i.e., if you achieve your performance goals you have more chance of achieving your outcome goal).

3) PROCESS GOALS

Process goals are when you set targets for the types of activity you need to do in order to achieve success. They tend to be tactical or technical in nature but can also be psychological. For example, a tactical goal maybe to attack with pace after defensive short corners. Psychologically you may set a process goal to stay focused and alert when the ball leaves play or when a free hit is won/conceded. These type of intrapersonal goals are excellent to set because they are completely within **'your control'** and are very internal. In essence, process goals help you breakdown hockey performance into a succession of smaller packages of performance over which you have a high sense of control. They also link to performance and outcome goals, in that if you achieve all your process goals you are more likely to achieve your performance goal and therefore achieving your outcome goal becomes more probable.

Other examples of process goals set for hockey could be

- Give the first pass I see
- Give the ball on open stick
- Defend the line to goal
- Switch 'on' not 'off' on the whistle

Finally, an important consideration when setting your goals relates to the perception you have of being able to achieve the goals. Players and athletes who have shown a favourable expectation to achieve their goals (i.e., yes I expect to achieve the goals I have set) have indicated stronger psychological preparation in the time leading up to games in comparison to players who hold an unfavourable expectation of achieving their goals (i.e., no I don't expect to achieve the goals I have set). This point is particularly important for the goals players have more **'control'** over achieving (i.e., the performance and process goal types). Therefore, it is particularly important to set realistic, achievable and controllable goals for performance and process goals.

Summary

- Make sure the goals you set are **SMARTER** goals

- Make sure you the performance and process goals you set are within **'your control'** and that you maintain a **'positive perception'** of being able to achieve them

Self Talk

Self talk refers to a process where players either talk to themselves internally (i.e., think it) or talk to themselves externally (i.e., say it out loud). The important thing to remember when using self talk is its **'what'** you say to yourself that's the key issue. This applies to using self talk both following matches or negative thoughts in the build up to an upcoming match or indeed in a match situation itself.

Key Points

They key principle of self talk is that it is **'what'** you **'say'** to yourself that is important. The content of the words or the self statement are key to the success of the skill. Basically, it is important to always use **'positive'** self talk statements rather than **'negative'** self talk statements. It is also a good idea that these words and/or statements are hockey specific and can be technical in nature (i.e., low through the ball). Also it is a good idea to use mood words that relate to your performance (i.e., fast or strong).

It is sometimes difficult for these self talk words or statements to remain positive especially when you feel negative or not in control of your thoughts and feelings. This is when it is important to combine the psychological skills that you use together, and in this situation rationalising/restructuring with the self talk will help you.

Self talk will be one of the major psychological skills you will use throughout your personal pre competition plan. However, the timing of its use will vary depending on the phase of the pre competition plan you are in. Also as mentioned, self talk is a great skill to combine with some of the other skills you will learn (e.g., imagery, rationalisation/restructuring). We will create

personal self talk scripts for the relevant time phases based on the negative thoughts you experience.

NAME_____

PHASE I (Post Match Saturday to Monday)

PREPARATION BOOKLET

PREPARATION REQUIRED FOR THIS PHASE

1. Review of performance negatives/performance errors post match
2. Review of performance positives/performance accomplishments post match

Review of Previous Game Negative and Positive Performances

Before we get into the one on one psychological skills session it is a good idea for you to do some preparation work so we can use the time in the session as effectively and efficiently as possible. Therefore, what I would like you to do before the session is to review your last performance on the sheets provided. Specifically, I need you to review two aspects of the game you have just played :-

Performance Negatives or Performance Errors

On this sheet I want you to review a maximum of **4** to **5** negative aspects of your performance (i.e., performance errors). For each of the performance errors please record the skill it involved, describe what happened, give the result of the error and then indicate how making that error made you think and feel.

Performance Positives or Performance Accomplishments

On this sheet I want you to review some positive aspects of your performance that will counter those you have recorded as performance negatives. For example, if you have recorded a bad pass to a certain team mate as one of your performance errors try to review a successful pass to the same team mate that could be used counter the negative error. If you can't review a performance positive from Saturdays game that counters the performance error, try to think back to previous games where you have performed that skill successfully and record that example. For each of the performance positives can you record, the skill it involved, describe what happened, give the result of the accomplishment and then indicate how accomplishing that skill made you think and feel.

Review of Performance Negatives **Opposition**_____ **Home/Away** (please circle)

What was the skill	Describe what you did	What was the result of the error?	What were you thinking after you made the error?		What were you feeling after you made the error?	
			At the time	Now when reviewing it	At the time	Now when reviewing it

Review of Performance Positives to Counter Performance Negatives

What was the skill	Describe what you did	What was the result of the performance accomplishment?	What were you thinking after you made the accomplishment?		What were you feeling after you made the accomplishment?	
			At the time	Now when reviewing it	At the time	Now when reviewing it

NAME_____

PHASE II (Pre Match Thursday and Friday)

PREPARATION BOOKLET

PREPARATION REQUIRED FOR THIS PHASE

1. Review of recent best performances
2. Recording of any pre performance negative thoughts and feelings

Review of Recent Best Performances

Before we get into the one on one psychological skills session it is a good idea for you to do some preparation work so we can use the time in the session as effectively and efficiently as possible. Therefore, before the session I would like you to review what you consider to be your most recent best performances on the Hockey field. Specifically, I need you to record a few of your recent best performances and include the following information:-

- Who were you playing against
- Were you playing at home or away
- What was so good about your performance (i.e., what did you do well)
- What thoughts and feelings did you associate with that best performance (during it and after it)

Please use one sheet per best performance that you review

Review of Recent Best Performances **Opposition**_____ **Home/Away** (please circle)

Describe your performance	Why was your performance so good (what did you do well?)	How did that performance make you feel?	What did that performance make you think?

Review of Recent Best Performances **Opposition**_____ **Home/Away** (please circle)

Describe your performance	Why was your performance so good (what did you do well?)	How did that performance make you feel?	What did that performance make you think?

Review of Recent Best Performances **Opposition**_____ **Home/Away** (please circle)

Describe your performance	Why was your performance so good (what did you do well?)	How did that performance make you feel?	What did that performance make you think?

Review of any Negative Pre Performance Thoughts and/or Feelings

For the second part of preparation I would like you to record any negative thoughts and feelings that you have experienced regarding the game coming up on Saturday. Please indicate these on the sheet provided and then we will discuss these on the one on one consultation linked to Phase II of the psychological skills programme.

Negative pre performance thoughts	Negative pre performance feelings

NAME_____

PHASE III (Pre Match Saturday)

PREPARATION BOOKLET

PREPARATION REQUIRED FOR THIS PHASE

1. Key skills for your position/role (e.g., short corners)
2. Examples of good match performance of these key skills
3. Recording of any pre performance negative thoughts and feelings
4. Key technical words and statements

Key Skills for your Position

Before we get into the one on one psychological skills session it is a good idea for you to do some preparation work so we can use the time in the session as effectively and efficiently as possible. Therefore, I would like you to record what you think are the key technical and tactical skills related to your position. For example, for a midfield player a key technical skill would include passing and a key tactical skill would be knowing when to 'hold' in defence or knowing when to 'join' the attack related to the players around you. Also there may be some key skills that relate to your role as well as your position. Examples of these would include your role at attacking and defending short corners.

Key Technical Skills	Key Tactical Skills

Examples of good match performance of these key skills

Secondly, what I would like you to do before the session is to review some recent good match performances of the key technical and tactical skills you have identified above. Specifically, I need you to record these skills and include the following information:-

- Who were you playing against
- Were you playing at home or away
- What was the skills involved
- What made it a good example of that skill
- What thoughts and feelings did you associate with that best performance (during it and after it)

Please use one row per skill performance that you review

Review of Key Skill Performances **Opposition**_____ **Home/Away** (please circle)

What was the skill	Describe what you did	What was good about the skill?	How did that performance make you feel?	How did that performance make you think?

Review of Key Skill Performances **Opposition**_____ **Home/Away** (please circle)

What was the skill	Describe what you did	What was good about the skill?	How did that performance make you feel?	How did that performance make you think?

Review of any Negative Pre-Performance Thoughts and/or Feelings

The third part of preparation I would like you to record any negative thoughts and feelings that you have experienced regarding the game coming up on today. Please indicate these on the sheet provided and then we will discuss these on the one on one consultation linked to Phase III of the psychological skills programme.

Negative pre performance thoughts	Negative pre performance feelings

Key Technical Words and Statements

For the final part of the preparation I would like you to think of some key technical words or statements that describe how you like to perform your skills. It is a good idea for these words or statements to be **'task'** related about **'technical'** aspects of the skill (e.g., low through the ball) and/or be **'action'** words (e.g., fast, strong) that reflect how you want to perform. The key to these key words or statements is to keep them short and to make sure that they are positive.

Positive 'task/technical' self talk statements	Positive 'mood/action' self talk statements

NAME_____

PHASE I (Post Match Saturday to Monday)

PSYCHOLOGICAL SKILLS BOOKLET

PSYCHOLOGICAL SKILLS FOR THIS PHASE

1. Replacing Negative Post Performance Images with Positive Post Performance Images

2. Rationalisation/Restructuring of Negative Post Performance Thoughts

Imagery and Mental Rehearsal

We have already discussed what imagery is, and the different perspectives and senses you can use to ensure imagery will work for you. It is well worth re reading the 'Introduction to Imagery and Mental Rehearsal' booklet before we attempt the imagery routines.

This imagery routine is designed to be used in Phase I of the pre match period; that is on Saturday, Sunday and Monday after the game you have just played. Try to perform the imagery routine on these days and it is recommended that you run through the imagery routine in a quiet time, perhaps just before you go to bed or when you are laid in bed before going to sleep.

This imagery routine is broken down into three sections

1) **A relaxation phase**

Imagery routines work most successfully when you are physically and mentally relaxed, that is why it is a good idea to practise and perform them at quiet times or just before you go to bed. Just to make sure that you are relaxed before starting the imagery routine the imagery tape will take you through a brief relaxation session

2) **An imagery review of previous game negatives**

This part of the imagery session will involve you imaging some performance negatives from the game you have just played. The sheets that you have worked on prior to the session, and the discussions we have had about the examples you have given will provide the stimuli for the content of these images. This might be something that you already do, elite hockey players like yourself and previous elite athletes have indicated that negative performance images tend to follow performance. Also, during this phase I will ask you to tell me the thoughts and feelings

that you are experiencing whilst replaying these negative images (examples taken from S's preparation sheets). I will then attempt to change the way you think about these symptoms that you are experiencing after the game. This will be done by using positive performance imagery to replace the negative images and by using some self talk and thought rationalisation/restructuring (i.e., Phase 1 of the rationalisation/restructuring session).

3) **<u>An imagery review of previous game positives</u>**

This part of the imagery session will involve you imaging some performance positives from the game you have just played or some performance positives from previously within your hockey career. The sheets that you have worked on prior to the session, and the discussions we have had about the examples you have given will provide the stimuli for the content of the images we will practice. What we are attempting to do in this phase is replace the negative post performance images that you tend to re play with some positive images from your hockey performances. Also during this phase I will ask you to tell me the thoughts and feelings that you are experiencing whilst replaying these images to stimulate some positive post performance thoughts for you.

SECTION 1: Relaxation Phase: Progressive Muscular Relaxation (PMR)

(Prior to starting to listen to the tape or before the consultancy, either sit in a comfy position or lie down)

Script of Tape (Produced in the initial consultation for Phase I)

As you sit/lie down (as appropriate) in a comfortable relaxing place I want you to close your eyes (pause)

I want you to notice the tension in the muscles of your body (pause)

To help remove that tension you are going to tense and relax several muscle groups of your body (pause)

To start with I want you to tense the muscles in your hands as tightly as you can. That's it squeeze your hands into a fist and feel the tension (pause)

Now I want you to release that tension (pause)

Feel the growing sense of relaxation flowing from your fingers (pause)

Now I want you to repeat that (pause)

Tense your hands and then let them relax (pause)

I want you to become aware of a deepening sense of relaxation your hands (pause)

Now I want you to tense your arms and shoulders. Hold them tight and then let them go, feel them relax (pause)

Repeat that again, tense the shoulders and then relax, and release the tension (pause)

As you release the tension feel the warm tingling sensation of blood rushing to your tissues. As they relax become aware of the heaviness of your limbs and the sensation of letting go (pause)

Now focus your attention to your face (pause)

Tense the muscles in your face and then relax them (pause)

Do this again and also begin to notice the rhythm of your breathing (pause)

I want you to spend a few moments listening to the rise and fall of your chest (pause)

Listen to yourself breathe (pause)

Breathe in through the nose and out through the mouth (pause)

Take a nice deep breath in and let it go through your mouth (pause)

As you breathe in tense you face (pause)

As you breathe out relax your face (pause)

Now I want you to focus on you legs and thighs (pause)

Tense them as tightly as you can (pause)

And then release that tension slowly and breathe out through the mouth (pause)

As soon as you release the tension notice the flowing sense of relaxation

Sense the heaviness in your limbs (pause)

Keep breathing deeply (pause)

In through the nose and out through the mouth

You should now feel completely absorbed by relaxation

SECTION 2: Imagery Review of Previous Game Negatives

Right now you are in a relaxed state we can move to the first imagery phase of the session. The purpose of this imagery phase is to review your post match thoughts and feelings and the negative experiences you may have had during the game. Basically, together we will attempt to replay some of the performance negatives from your last game and establish how this makes you think and feel. We will start with the ones you have identified on the preparation sheets.

To start with I want you to replay _____ (insert discussed example off S's preparation list) from Saturdays game. Try to put yourself back into that game situation see where you were on the pitch, here the noises around you and the feel of the movements you made. See the result of your actions.

I will give a few minutes just to get that image in your head, for you to replay it (pause approximately 1 minute)

Can you replay that image ok? (revisit and explore if S having problems imaging)

Whilst you replay that image I want you to try and remember what you were thinking after it happened. Can you tell me those thoughts, what was going through your head after that _____ (insert discussed performance error)? (pause and record thoughts). What about now, what does replaying that image make you think now? (pause and record thoughts). What about feelings, how did it make you feel, what were you feeling after you made that _____ (insert discussed performance error)? (pause and record feelings). What about now, how does replaying that image make you feel now? (pause and record feelings)

(pause to go through process listed above approximately 1 minute).

Now we have gone through that process of replying that negative image it is important to try and overcome it and the thoughts and feelings that are associated with it. We will go through two ways of doing this. The first is an imagery based process where we will replace the negative performance image with the positive performance image of _____ _____ (insert discussed example off S's preparation list). The second is a restructuring/rationalisation process that we will go through after the positive performance image. After practise, we will integrate these two psychological skills into one post performance routine.

SECTION 3: **Imagery Review of Previous Game Positives**

So, to start with are you still feeling mentally and physically relaxed (if **YES** continue, if **NO** go through PMR again).

OK, to start with I want you to think of the performance accomplishment that you can remember from Saturdays game, the time where you performed the skill you have just negatively imaged successfully the time when you _____ (insert discussed example off S's preparation list). If you can't remember an example of your chosen skill from Saturdays game we will go back to when you _____ (insert discussed example off S's preparation list r) the example from your previous hockey career where you can remember performing that skill successfully. Try to put yourself back into that game situation see where you were on the pitch, hear the noises around you and the feel of the movements you made. See the successful skill from start to finish.

I will give you a few minutes just to get that image in your head, for you to replay it (pause approximately 1 minute)
Can you replay that image OK? (revisit and explore if S having problems imaging)

I want you to replay that image again. Whilst you replay that image I want you to try and remember what you were thinking after it happened. Can you tell me those thoughts, what was going through your head after that _____ (insert discussed performance accomplishment)? (pause and record thoughts). What about now, what does replaying that image now make you think now? (pause and record thoughts). What about feelings, how did it make you feel, what were you feeling after that _____ (insert discussed performance accomplishment)? (pause and record feelings). What about now, how does replaying that image now make you feel now? (pause and record feelings).

(pause to go through process listed above approximately 1 minute).

Keep replaying the image over in your head. Try to play it in slow motion, try to image performing the skill in every detail in slow motion, then try to speed the image up. Also, try to change the perspective of the image, try to see yourself from outside your body as if you are watching yourself from the pitch side, see yourself externally performing the skill successfully. Alternatively see the image from within your own body, through your own eyes, try to feel the movements associated to the skill. Try and do these different things with your imagery routine of the successful skill, I will give you a few moments to practise those different things.

(pause for 2 minutes to go through the process listed above)

Excellent, congratulations on performing your skill successfully in the game situation, congratulations on replacing the negative image with a positive one from Saturdays game/from previous in your career (as appropriate). This is a great process to get into and forms a major psychological approach to overcoming post performance negative thoughts and feelings in Phase I of the psychological skills package. To replace the negative image with a positive one emphasises that you have the ability to perform the skill in the match environment. The use of this skill will be of particular use to you following a game, to help you overcome the negative thoughts and feelings that you experience and think are out of your control. It helps bring back the positive thoughts and feelings and control the negative ones by focusing on performance factors where you succeeded.

You need to practice and go through this process through the Saturday, Sunday and Monday slowly replacing the negative images that you may have with some positive ones from Saturdays game or from previously in

your career. So that by the time Monday comes, you are actually only replaying positive images.

Rationalisation/Restructuring of Negative Thoughts

We have already discussed what thought rationalisation/restructuring is, and how it will benefit your performance. It is well worth re reading the 'Introduction to Rationalisation/Restructuring of Negative Thoughts' booklet before attempting the process.

This rationalisation/restructuring routine is designed to be used in Phase I of the pre competition period; that is on Saturday, Sunday and Monday after the game you have just played. However, the principles of the rationalisation/restructuring routine will apply to other phases within the pre competition period. The rationalisation/restructuring routine is designed to be performed at any time that you have negative post performance thoughts or feelings. However, it is also a good idea to integrate rationalisation/restructuring of negative thoughts and feelings into the imagery routine that we have just performed. This specifically applies to **Section 2** of the imagery routine **'Imagery Review of Previous Game Negatives'** a process that elite hockey players and elite athletes tend to experience following performance.

Remember, in that phase of the imagery routine I asked you to describe what imaging that negative performance made you think and what it made you feel, well those are some of the negative post performance thoughts and feelings that you will experience following a game, it might not be all of them but it will be some of them. Also we have the negative thoughts and feelings that you have prepared prior to the session. The use of rationalisation/restructuring when you have those negative images and will help you to overcome the negative thoughts and feelings that are associated with them, it will help you to control them and to overcome them.

To start with lets just focus on the process of rationalising/restructuring the performance image negatives.

The negative performance situation you imaged was _____ _____ lets just see how we can restructure the negative performance thought that were associated with that image

Negative performance images/thoughts	Rationalised/Restructured thought
Performance error (e.g., giving the ball away)	everyone gives the ball away, even the best players make mistakes, hockey is that type of sport
Performance error (e.g., giving the ball away)	I may have given the ball away then, but I know that I made lots of successful passes in the game
Performance error (e.g., giving the ball away)	I may have given the ball away too much, but look at the other areas of my game that were strong, my reading of the game was great
Performance error (e.g., giving the ball away)	Remember its only hockey, its not a career, we're an amateur sport, I do this for fun, its not life or death

However, those are just examples of how you can restructure/rationalise negative thoughts from your negative post performance imagery. You may also just experience negative post performance thoughts on their own that are not associated to imagery. We have some of those examples from the list you have already prepared from last weeks game. Some examples of how to restructure those may include.

Negative performance thoughts	Rationalised/Restructured thought
Questioning of ability (e.g., Am I really good enough at this level)	I must be good enough at this level that's why I am selected in the squad every week or It's good to question if I'm good enough at this level, it motivates me to get out there and improve as a player
Performance failures (e.g., I played crap today my performance was dreadful)	Everyone has bad games even Internationals, one bad game doesn't make me a bad player
Performance disappointments (e.g., I'm disappointed with my performance today I'm worried I'll play like that next week)	It's good that I'm disappointed, it means that hockey's important to me and that I'm willing to invest effort to put things right for next week

However, it is important for you to know **'how'** to go about rationalising/restructuring the negative thoughts that you have that we might not have discussed today, we can't cover every eventuality! Therefore outlined below are the key stages to rationalising/restructuring a negative thought

1 Identification of negative and/or irrational/de structuring thought

Before you can attempt to rationalise/restructure the thought you have to be able to identify that the thought is negative. To do this you need to ask yourself the following questions about the post performance thoughts you have

a) Is my thinking based on fact (e.g., just because I made some mistakes today does that really make me a bad player?)

b) Does my thinking help me achieve my hockey goals?

c) Does my thinking help me feel positive about my hockey performance?

You need to apply these questions to the post performance thoughts you have and decide if your response to the questions is in your best interest (i.e., can you answer **'yes'** to the above questions). If it is not (i.e., answering **'no'** to the above questions) then the thought needs rationalising/restructuring.

To rationalise/restructure the thought you need to **'dispute it'** just as I have done in the brackets after point a above (another example could be e.g., I must be good enough at this level that's why I am selected in the squad every week) or you need to restructure it with a **'rational'** thought (e.g., It's good to question if I'm good enough at this level, it motivates me

to get out there and improve as a player) or restructure it with a positive one in it's place (e.g., Everyone has bad games even Internationals, one bad game doesn't make me a bad player).

This will take practice and you are encouraged to write your negative post performance thoughts on the sheets provided and your examples of what you rationalised/restructured them into. We can then discuss these throughout the psychological skills intervention programme.

List any negative post performance thoughts you have here, with the thoughts that you use to rationalise/restructure them with.

Day the thoughts occurred	Negative performance thought	Rationalised/Restructured thought you replaced it with

NAME_____

PHASE II (Pre Match Thursday to Friday)

PSYCHOLOGICAL SKILLS BOOKLET

PSYCHOLOGICAL SKILLS FOR THIS PHASE

1. Best Performance Imagery
2. Rationalisation and Restructuring of Negative Pre Performance Thoughts
3. Goal Setting (Performance and Process Goals)

Best Performance Imagery and Mental Rehearsal

We have already discussed what imagery is and used imagery in Phase I of the pre match period to review previous performances from last Saturday's game.

The imagery routine in this phase of the pre match period (i.e., Phase II, Thursday to Friday pre match) has similarities with the imagery you used in Phase I; however, there will be some subtle differences in the approach we take. Specifically, the imagery we use in this phase will not review your performance negatives from your previous game. During this phase we will focus on positive performance images only, in fact, we will produce an imagery routine based on your **'best performance'** and get you to use this type of approach in this Phase of the pre match period. Phase II of the pre match period relates to the Thursday and Friday before the game that is coming up on the Saturday. Try to perform the imagery routine on these days and it is recommended that you run through the imagery routine in a quiet time, perhaps just before you go to bed or when you are laid in bed before going to sleep.

This imagery routine is broken down into two sections

1) **A relaxation phase**

As discussed in Phase I Imagery routines work most successfully when you are physically and mentally relaxed. Therefore, we will follow a similar relaxation session in this Phase as we used in Phase I before starting the imagery routine.

2) **Imagery review of best performance**

This part of the imagery session will involve you imaging some of your best performances of playing hockey. The sheets that you have

worked on prior to the session, and the discussions we have had about the examples you have given will provide the stimuli for the content of the images you will practice. Also during this phase I will ask you to tell me the thoughts and feelings that you are experiencing whilst replaying these best performance images to stimulate some positive pre performance thoughts for you.

SECTION 1: Relaxation Phase: Progressive Muscular Relaxation (PMR)

(Prior to starting to listen to the tape or before the consultancy, either sit in a comfy position or lie down)

Script of Tape (Produced in the initial consultation for Phase II)

As you sit/lie down (as appropriate) in a comfortable relaxing place I want you to close your eyes (pause)

I want you to notice the tension in the muscles of your body (pause)

To help remove that tension you are going to tense and relax several muscle groups of your body (pause)

To start with I want you to tense the muscles in your hands as tightly as you can. That's it squeeze your hands into a fist and fee the tension (pause)

Now I want you to release that tension (pause)

Feel the growing sense of relaxation flowing from your fingers (pause)

Now I want you to repeat that (pause)

Tense your hands and then let them relax (pause)

I want you to become aware of a deepening sense of relaxation your hands (pause)

Now I want you to tense your arms and shoulders. Hold them tight and then let them go, feel them relax (pause)

Repeat that again, tense the shoulders and then relax, and release the tension (pause)

As you release the tension feel the warm tingling sensation of blood rushing to your tissues. As they relax become aware of the heaviness of your limbs and the sensation of letting go (pause)

Now focus your attention to your face (pause)

Tense the muscles in your face and then relax them (pause)

Do this again and also begin to notice the rhythm of your breathing (pause)

I want you to spend a few moments listening to the rise and fall of your chest (pause)

Listen to yourself breathe (pause)

Breathe in through the nose and out through the mouth (pause)

Take a nice deep breath in and let it go through your mouth (pause)

As you breathe in tense you face (pause)

As you breathe out relax your face (pause)

Now I want you to focus on you legs and thighs (pause)

Tense them as tightly as you can (pause)

And then release that tension slowly and breathe out through the mouth (pause)

As soon as you release the tension notice the flowing sense of relaxation

Sense the heaviness in your limbs (pause)

Keep breathing deeply (pause)

In through the nose and out through the mouth

You should now feel completely absorbed by relaxation

SECTION 2: Best Performance Imagery

Right now you are in a relaxed state we can move onto the first imagery phase of the session. The purpose of this imagery phase is to replay some of your recent best performances and to re experience them in the run up to the next competitive game.

If you start with replaying _____ (insert discussed example off S's preparation list) To start with I want you to think of a that performance. Try to put yourself back into that game situation see where you were on the pitch, see who you are playing against, here the noises around you and the feel of the movements you made. See the result of your actions.

I will give a few minutes just to get that image in your head, for you to reply it (pause approximately 1 minute)

Can you reply that image ok? (revisit and explore if S having problems imaging)

Can you describe that image too me?

Whilst you reply that image I want you to try and remember what you were thinking after it happened. Can you tell me those thoughts, what was going through your head after that performance (pause and record thoughts). What about now, what does replying that image make you think now? (pause and record thoughts). What about feelings, how did it make you feel, what were you feeling after you had that performance (pause and record feelings). What about now, how does replying that image make you feel now? (pause and record feelings)

(pause to go through process listed above approximately 1 minute). What about if we try to replay another image, an image of another recent best performance. If you start with replaying _____ (insert second discussed example off S's preparation list) To start with I want you to think of a that performance. Try to put yourself back into that game situation see where you were on the pitch, see who you are playing against, here the noises around you and the feel of the movements you made. See the result of your actions.

I will give a few minutes just to get that image in your head, for you to reply it (pause approximately 1 minute)

Can you reply that image ok? (revisit and explore if S having problems imaging)

Can you describe that image too me?

Whilst you reply that image I want you to try and remember what you were thinking after it happened. Can you tell me those thoughts, what was going through your head after that performance (pause and record thoughts). What about now, what does replying that image make you think now? (pause and record thoughts). What about feelings, how did it make you feel, what were you feeling after you had that performance (pause and record feelings). What about now, how does replying that image make you feel now? (pause and record feelings)

(pause to go through process listed above approximately 1 minute).

Keep replying the image over in your head. Try to play it in slow motion, try to image performing the skill in every detail in slow motion, then try to speed the image up. Also, try to change the perspective of the image, try to see yourself from outside your body as if you are watching yourself from the pitch side, see yourself externally performing the skill successfully. Alternatively see the image from within your own body, through your own eyes, try to feel the movements associated to the skill. Try and do these different things with your imagery routine of the successful skill, I will give you a few moments to practise those different things.

(pause for 2 minutes to go through the process listed above)

Excellent, congratulations on performing your skill successfully in that game situation. Congratulations on reliving that best performance and seeing that you are capable of playing that well, you've done it before so you can do it again. This is a great process to get into and forms a major psychological approach to overcoming any pre performance worries, doubts and negative feelings that you may experience. To see that you

can perform that well as you have in the past really reinforces what you are capable of as a player. It really stimulates the confidence based thoughts and shows you that you have the ability to perform when the pressure is on and the doubts and worries are there, you can overcome them. The use of this skill will be of particular use to you before a game, to help you overcome the negative thoughts and feelings that you experience and think are out of your control. It helps bring back the positive thoughts and feelings and gives you that sense of control over the negative ones by focusing on performance factors where you succeeded.

Try and go through this process through the Thursday and Friday, reviewing your previous best positive performances.

Rationalisation/Restructuring of Negative Thoughts

We have already discussed what thought rationalisation/restructuring is and used thought rationalisation/restructuring in Phase I of the pre match period when reviewing previous performances from last Saturday's game.

The negative thought rationalisation/restructuring programme in this phase of the pre match period (i.e., Phase II, Thursday to Friday pre match) has similarities with the thought rationalisation/restructuring programme you used in Phase I; however, there will be some subtle differences in the approach we take. Specifically, the rationalisation/restructuring programme in this phase is designed to be used when ever you have a negative thought regarding the upcoming game, rather than for its use in the last phase, when you applied it to previous performance negative thoughts. However, the process is essentially the same and we can apply it to the negative thoughts about the upcoming match.

If we take the preparation sheet where you have recorded any negative thoughts that you have had about the game coming up on Saturday we will attempt to rationalise/restructure them around in the same fashion as we used for Phase I. (refer to S's list)

Negative pre performance thoughts	Rationalised/Restructured thought

The thoughts listed above are just some examples of ones that you may need to restructure in the lead up to Saturdays game. However, the above list will not be exhaustive. During the lead up to the game in Phase II record any negative thoughts you have and the thoughts you use to rationalise/restructure them. We can then discuss these through the course of the consultancy programme.

Negative pre performance thoughts	Rationalised/Restructured thought

However, as noted in Phase I, it is important for you to know **'how'** to go about rationalising/restructuring negative thoughts that you have that we might not have discussed, we can't cover every eventuality! Therefore, just to remind you of the process involved the key stages to restructuring a negative thought are again listed below

1 Identification of negative irrational/de-structuring thoughts

Before you can attempt to rationalise/restructure the thought you have to be able to identify that the thought is negative. To do this you need to ask yourself the following questions about the post performance thoughts you have

a) Is my thinking based on fact (e.g., just because you are concerned about performing poorly will that really mean you will perform badly?)

b) Does my thinking help protect me achieve my hockey goals?

c) Does my thinking help me feel positive about my upcoming hockey performance?

You need to apply these questions to the pre performance thoughts you have and decide if your response to the questions is in your best interest (i.e., can you answer **'yes'** to the above questions). If it is not (i.e., answering **'no'** to the above questions) then the thought needs rationalising/restructuring.

To rationalise/restructure the thought you need to **'dispute it'** (e.g., I must be good enough at this level that's why I am selected in the squad every week) or you need to restructure it with a **'rational'** thought (e.g., It's good to question if I'm good enough at this level, it motivates me to get out

there and improve as a player) or restructure it with a positive one in it's place (Everyone has these thoughts, they can't harm me in any way I know I can play well when I have them).

This will take practice and you are encouraged to write your negative post performance thoughts on the sheets provided and your examples of what you rationalised/restructured them into. We can then discuss these throughout the psychological skills intervention programme.

Performance and Process Goals

We have already discussed what goal setting is, and the different types of goals that you can set to ensure that goal setting will work for you. It is well worth you re reading the 'Introduction to Goal Setting' booklet before attempting to set your own performance and process goals.

The goals we set are going to be goals that are within your control, therefore we will not set outcome goals on an individual basis. Remember we discussed that because hockey is a team sport the outcome (i.e., the result) relies on the performance of your team mates and on the performance of the opposition, therefore, it is difficult for outcome goals to remain in your **control**. Therefore, we will not be setting any individual outcome goals but we do have the outcome goals to refer to that we have set on a collective basis as a squad.

What we will be setting are **performance** and **process** goals which you do have a high degree of control over. As mentioned in the 'Introduction to Goal Setting' booklet it can be quite difficult to set performance based goals in open based sports like hockey. However, with some discussions we can produce some performance goals for you to focus on.

We will discus, set the goals and record the goals in the tables below.

Performance Goals	When to review

Process Goals	When to review

It is important for you to focus on these performance and process goals during Phase II of the intervention programme. This is particularly the case for the team based training session that falls in the middle of this pre match Phase. Therefore, it is a good idea for you to record these goals in your own hand writing on the cards provided and read them during Phase II of the programme. Place a copy of them in your stick bag and refer to them at the key time of training.

NAME_____

PHASE III (Pre Match Saturday)

PSYCHOLOGICAL SKILLS BOOKLET

PSYCHOLOGICAL SKILLS FOR THIS PHASE

1. Best Performance Imagery
2. Rationalisation/Restructuring of Negative Pre Performance Thoughts
3. Goal Setting (Performance and Process Goals)
4. Positive Self Talk

Best Performance Imagery and Mental Rehearsal

We have already discussed what imagery is and used imagery in Phase I of the pre match period to review performance and in Phase II of the pre match period to replay your best performances.

The imagery routine in this phase of the pre match period (i.e., Phase III, Saturday pre match) has similarities with the imagery you used in Phase II; however, there will be some slight differences in the approach we take. Specifically, the imagery you use in this phase will focus only on positive performance images of the skills that relate to your positional requirements. Phase III of the pre match period relates to the Saturday on the morning/afternoon (depending on push back time) of the match day. Try to perform the imagery routine on these days and it is recommended that you run through the imagery routine in a quiet time. For example, key times to run through the routine would be on quiet times travelling to the venue (i.e., from your home for home game or from the hotel for away games as long as your not driving) or in the quiet times in the bar before you change, or during the team talk in the changing room when everyone is quiet and focusing in on the match.

This imagery routine is broken down into two sections

1) **A relaxation phase**

As discussed in Phase I and Phase II Imagery routines work most successfully when you are physically and mentally relaxed. However, during times close to the game you won't necessarily have the time to follow the relaxation session we used in Phase's I and II. Therefore, we will follow a different relaxation routine which is designed to relax you in a short space of time before you start imaging. Due to practical limitations

of becoming relaxed at these times, there will be no relaxation tape to accompany this phase of the routine.

2) **<u>An imagery review of some key skills associated to your best performance</u>**

This part of the imagery session will involve you imaging some selected skills that relate to your best performance imagery routine. In this pre match period image performing the skills that are key to your position in a technically perfect way as identified on the preparation sheets you have worked on. The processes involved in executing these skills (e.g., passing, shooting, tackling, dribbling, picking defensive lines) in a technically perfect way are all within your control. Also within these images focus on a successful outcome to skill (i.e., hitting the target receiver, scoring). There are a few key areas that need emphasising in the imagery you use at these times:-

- Always image a **successful outcome** to the skill
- Image very **positive** aspects of the skill such as how good the ball **feels** when it leaves the stick, or how good it **sounds** when the ball smacks the backboard
- Image how much you enjoy playing well and producing an **optimum performance** in that **pressure situation**

SECTION 1: **Relaxation Phase: Cue (breathing) Controlled Relaxation**

- Sit down and close your eyes (you can try with your eyes open if you feel more comfortable)
- Take two to three deep breathes
    - In through the nose (inhale)
    - Out through the mouth (exhale)
- As you exhale say to yourself 'RELAX' or 'CALM' or 'LOOSE' or another key word of your choice that reflects a relaxed state

  _____ (record S's key word)

- As you relax scan your body for tension and try to release and relax any muscle groups that you feel are tense

(Ask S if a relaxed state has been obtained, if not repeat and practice the process)

SECTION 2: **An imagery review of some key skills associated to your best performance**

Now you are in a relaxed state we can move to the imagery phase of the session. The purpose of this imagery phase is to replay some of the skills that are specific to your position that are key to a positive personal performance. These images will be based on skills that you have previously successfully performed in competitive pressure match situations.

If you start with replaying _____ (insert discussed example off S's preparation sheet). To start with I want you to think of performing that skill successfully. See yourself successfully _____ (insert S's chosen skill). See where you are on the pitch, here the noises around you

and feel the movements you made. Image how much you enjoyed the feeling of completing that skill.

I will give you a moment to get those images in your head, for you to replay it (pause approx 30 secs)

Can you replay that image ok? (revisit and explore if S having problems imaging)

What about if we were to replay the image of a different skill. If you start with replaying _____ (insert second discussed example of S's preparation sheet). Think of performing that skill successfully, see the control you have over that skill, the positive execution of the skill. Feel the ball coming off the stick, here the ball hitting the backboard/the congratulations of your team mate and the crowd as they appreciate the quality of the pass/tackle/interception (as appropriate)

I will give you a moment to get those images in your head, for you to replay it (pause approx 30 secs)

Can you replay that image ok? (revisit and explore if S having problems imaging)

Keep replaying that image over in your head. Try to replay it in slow motion, try to image performing the skill in every detail. Also, try to change the perspective of the image, try to see yourself from outside your body as if you are watching yourself from the pitch side, see yourself externally performing the skill successfully. Alternatively, see the image form within your own body, through your own eyes, try to feel the movements associated with the skill. Try to do these different things with your imagery routine of the successful skill, I will give you a few moments to practice those different things.

(pause for 2 minutes to go through the process listed above)

Excellent, congratulations on performing that key skill successfully in that game situation. Congratulations on reliving that successful skill and seeing that you are capable of playing that well, you've done it before so you can do it again. This is a great process to get into just before the match as it really emphasises that you have done those skills in the past so you have them in your armoury as a player. The use of this type of imagery forms a major psychological approach to overcoming any pre performance worries, doubts and negative feelings that you may experience. To see that you can perform that well, as you have in the past really reinforces what you are capable of as a player. It really stimulates the confidence based thoughts and shows you that you have the ability to perform when the pressure is on and the doubts and worries are there, you can overcome them. The use of this skill will be of particular use to you before a game, to help you overcome the negative thoughts and feelings that you experience and think are out of your control. It helps bring back the positive thoughts and feelings and gives you that sense of control over the negative ones by focusing on performance factors where you can succeed.

The key to using imagery at these times so close to the game are as follows

- Relax yourself using your breathing and key word
- Image a successful skill related to the demands of your position. Don't complicate things, stick to one or two skills and see yourself performing those well
- Image all the positive aspects of the skill, the successful outcome, how good your performance of the skill feels, for example, the feel of the ball coming off the stick

Rationalisation/Restructuring of Negative Thoughts

We have already discussed what negative thought rationalisation/ restructuring is, and used it in Phase I of the pre match period to overcome negative post match thoughts and in Phase II of the pre match period to overcome negative pre match thoughts.

The rationalisation/restructuring routine in this phase of the pre match period (i.e., Phase III, Saturday pre match) is very similar to the rationalisation/restructuring routine you used in Phase II. There is no difference to the processes involved in rationalising/restructuring the negative thought, the only difference could be that the actual negative thoughts you experience might change to the ones you overcame in Phase II. The preparation sheets that you have completed will help to establish this.

Also, in Phase III of the pre match period you might experience some negative pre match feelings (e.g., physical nervousness, tension, butterflies) you can also use the rationalisation/restructuring routine to help overcome these negative feelings. We will create some rationalisation/restructuring routines to overcome these negative feelings throughout the course of this session based on the preparation sheets that you have completed.

If we take the preparation sheet where you have recorded any negative thoughts that you have had about the game coming up today we will attempt to rationalise/restructure them around in the same fashion as we used for Phase II (refer to S's list. Also ask S if there are any additional

thoughts are experiencing NOW that are not included on the preparation list).

Negative pre performance thoughts	Rationalised/Restructured thought

As we previously mentioned, you might be experiencing some negative feelings at this time in relation to the game coming up today. If we take the preparation sheet where you have recorded any negative feelings about the game we will attempt to restructure these around again using a rationalisation/restructuring routine. (refer to S's list. Also ask S if there are any additional feelings they are experiencing NOW that are not included on the preparation list)

Negative pre performance feelings	Rationalised/Restructured feelings

However, as noted in Phase I and Phase II it is important for you to know **'how'** to go about rationalising/restructuring the negative thoughts and feelings that you may have that we might not have discussed, we can't cover every eventuality! Therefore, just to remind you of the processes involved the key stages to rationalising/restructuring a negative thought and/or feeling are again listed below.

1 Identification of negative irrational/de-structuring thoughts and/or feelings

Before you can attempt to rationalise/restructure the thought and/or feeling you have to be able to identify that the thought and/or feeling is negative. To do this you need to ask yourself the following questions about the pre performance thought and/or feeling you have

a) Is my thinking based on fact (e.g., just because you are concerned about performing poorly will that really mean you will perform badly?)

b) Does my thinking help protect me achieve my hockey goals?

c) Does my thinking help me feel positive about my hockey performance?

You need to apply these questions to the pre performance thoughts and/or feelings you have and decide if your response to the questions is in your best interest (i.e., can you answer **'yes'** to the above questions). If it is not (i.e., answering **'no'** to the above questions) then the thought/feeling needs rationalising/restructuring.

To rationalise/restructure the thought and/or feeling you need to **'dispute it'** (e.g., I must be good enough at this level that's why I am selected in

the squad every week) or you need to restructure it with a **'rational'** thought (e.g., It's good to question if I'm good enough at this level, it motivates me to get out there and improve as a player or its good for my body to feel nervous it means that I'm ready and physically activated to go out there and perform) or restructure it with a positive one in it's place (e.g., Everyone has these thoughts, they can't harm me in any way I know I can play well when I have them or I like and want to feel this way its good for me to feel this way).

This will take practice and you are encouraged to write your negative pre performance thoughts and/or feelings on the sheets provided and your examples of what you rationalised/restructured them into. We can then discuss these throughout the psychological skills intervention programme.

Performance and Process Goals

We have already discussed what goal setting is, and used goal setting in Phase II of the pre match period. In Phase II we focused on Performance and Process goals when setting goals and this will not change for Phase III. In fact, the performance and process goals that you set for Phase II apply to this phase of the pre match period. The key is to keep reminding yourself of them.

Keep a copy of the cards listing your performance and process goals in your stick bag so that you can easily get access to them and re read them during Phase III of the pre match period. Remind yourself of these goals and focus on these goals at these times. Remember that performance goals and process goals are within your control and that is why you need to focus on them. But also remember that if you work towards achieving your performance and process goals, our collective team outcome goals are more likely to follow.

Self Talk

We have already discussed what self talk is and the ways that self talk can help to improve your performance. It is well worth you re reading the 'Introduction to Self Talk' booklet before we attempt these self talk routines.

You have started to introduce self talk into the other psychological skills you have learnt and I know that we have discussed this. For example, we have considered and used of self talk when you are rationalising/ restructuring any negative performance thoughts and/or feelings that you might experience. Also we have discussed and used self talk whilst you are imaging, and I know that you have integrated this into your imagery routines. This provides you with a solid base from which to incorporate the self talk routines we are going to produce.

We will produce some self talk statements or key words that relate specifically to hockey performance. The preparation sheet you have worked on asking for key words about hockey tasks and technique related to the skills you perform in addition to mood or action words that are associated to these hockey skills will help us to produce these. You are also reminded that the use of self talk is critical when rationalising/restructuring any negative thoughts and/or feelings you might have at these pre performance times. You are encouraged to keep repeating those self talk statements to yourself to help overcome any negative symptoms you may experience.

Positive 'task/technical' self talk statements	Positive 'mood/action' self talk statements

We will record these positive self talk statements in your own hand writing and place them on cards for you to read and repeat to yourself during Phase III of the programme. Place the cards in your stick bag and also try to memorise them for use at times close to and even during the matches.

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